Kelvin Sung

Professor
Computing and Software System
University of Washington, Bothell
Phone: (425)-352-5420
Email: ksung@uw.edu

Research Interests	Applied Pedagogy; Videogame Development; Location Aware Applications; Computer Graphics; All aspects of image generation; Visualization; Augmented/Virtual/Mixed Reality.
Teaching Interests	Computer Graphics; Videogames Games Development; Mobile Computing; Operating Systems; Digital Logic; Undergraduate introductory courses.
Education	PhD in Computer Science, University of Illinois at Urbana-Champaign (1992) MS in Computer Science, University of Illinois at Urbana-Champaign (1990) BS in Electrical Engineering, University of Wisconsin at Madison (1986)

Experience

2012–13, 15–2018	**Associate Director for Graduate Studies**
2013–14	**Undergraduate Education Coordinator**
2009 – now	**Professor with Tenure**
1999 – 2009	**Associate Professor with Tenure** Computing and Software Systems University of Washington, Bothell
2016 – 2019	**External Examiner** Faculty of Computing and Informatics (FCI) Multimedia University, Cyberjaya, Selangor, Malaysia
Fall 2014 *One-week visit*	**Visiting Professor** UTM-IRDA Digital Media Center Universiti Teknologi Malaysia (University of Technology, Malaysia)
1998 – 1999 1995 – 1998	**Software Architect** **Senior Software Engineer** Alias|Wavefront, Toronto, Canada ▪ One of the designers of the Maya Renderer. Alias|Wavefront was awarded the *Academy Award for Scientific and Technical Achievement* in 2002 for the development of the Maya image generation system. ▪ Co-Developed a patented motion blur algorithm.
1992-1995	**Lecturer (Assistant Professor)** Department of Information Systems and Computer Science National University of Singapore
Summer 1993	**Visiting Researcher** Institute of Information Science Academia Sinica, Taiwan
1987-1992	**Research Assistant** Department of Computer Science University of Illinois at Urbana-Champaign
1986-1987	**Teaching Assistant** Department of Information Systems and Computer Science National University of Singapore

Grants (Total: $2,082,998-)

- "Expanding Interactive College Affordability Model," *Lumina Foundation for Education*, Award Number: 10381, $945,300, 2017-2020. PI: Jim Fridley (University of Washington), co-PI: **K. Sung**.
- "Expanding Interactive College Affordability Prototype Model," *Lumina Foundation for Education*, Award Number: 9539, $327,300, 2015-2017. PI: Jim Fridley (University of Washington), co-PI: **K. Sung**.
- "Pilot of *Reality Ends Here* Game from USC," *Microsoft Research Connection* and *Microsoft Partners in Learning*, $47,000, 2013. PI: J. Pace (Digital Future Lab, UWB), co-PI: **K. Sung**.
- "Game-Themed CS1/2: Empowering the Faculty," *TUES Type-1, NSF*, DUE-1140410, $229,986, 2012-2015 [*Success rate: 125 of 919 (~13.6%)*], PI: **K. Sung**, co-PI: M. Panitz (Cascadia Community College), J. Pace (Digital Future Lab, UWB).
- "Curriculum for Windows Phone 7 Gaming Platform," *Microsoft University Relations* and *Microsoft Studios*, $15,000, 2011-2012, PI: **K. Sung**.
- "Advanced Placement Computer Science Principles Pilot Course," *Microsoft Research*, $50,000, 2011-2012. PI: **K. Sung**, co-PI: Lawrence Snyder (University of Washington).
- "Kinections in Education," *Microsoft Research* and *Microsoft Partners in Learning*, $166,750, 2011-2012. PI: R. Angotti (UWB), co-PI: **K. Sung**.
- "Infrastructure for Sensor Support on Mobile Gaming Platforms," *Microsoft Higher Ed Faculty Programs*, $8,800, 2010, PI: **K. Sung**.
- "A Traditional Game-Themed CS1 Class," *Microsoft Research*, Award Number: 16531, $130,000, 2008-2010, PI: **K. Sung**, co-PI: M. Panitz (Cascadia Community College).
- "XNA Based Game-Themed Programming Assignments for CS1/2," *Microsoft Research*, *Computer Gaming Curriculum in Computer Science*, Award Number: 15871, $80,000, 2006-2008 [*Success rate: 6 of 71 (~8.5%)*], PI: **K. Sung**, co-PI: M. Panitz (Cascadia Community College).
  - Results from this project were selected to be specially featured in a Microsoft External Research Case Study, "*Transforming Computer Science in the Gaming Age*," July 2008.
- "Essential Concepts for Building Interactive Computer Graphics Applications," *CCLI-EMD, NSF*, DUE-0442420, $60,500, 2005-2007 [*Success rate: 122 of 742 (~16.4%)*], PI: **K. Sung**.

Internal Grants

- *Computing and Software Systems Division*, *University of Washington, Bothell*, Research Assistant Support
  - "Remote Physical Immersion via Multiview Interpolation," Three academic quarters, 2021-2022, September, 2021.
  - "Detachable First-Person View in Cross-Reality Collaboration," Two academic quarters, 2020-2021, September, 2020.
  - "Augmented Space Library V2.0," Two academic quarters, 2019-2020, September, 2019.
  - "Traveling Across Reality," Two academic quarters, 2018-2019, September, 2018.
  - "The Cross Reality Collaboration Framework—For Analyzing and Identifying Potentials for Collaborations across Reality and Distance," Three academic quarters, 2017-2018, September, 2017.
- *Computing and Software Systems Division*, *University of Washington, Bothell*, Research Support
  - "Concluding Augmented Space Library (ASL) 2.0," $5,000, May 2020.
  - "Integrating CRCS Results into Existing and Future Grad Classes," $6,000, May 2019.
  - "Dynamically configurable CRCF Signatures," $4,900, March 2018.
  - "Supporting Cross Reality Collaboration Framework Investigations," $4,500, July 2017.
  - "Exploring Multi-Tiered Web-based Visualization System," $2,500, October 2015.
- "Infrastructure for Sustainable Outreach," *Computing and Software Systems Division*, *University of Washington*, $50,000, October 2014.
- "Initial Prototype for Commercialization of Linx and Space Smasher Casual Games," *Center for Commercialization*, *University of Washington*, $25,000, with Jason Pace, Digital Future Lab, March 2014.

- "Casual Game Engine for Cross Platform Gameplay Support," *Computing & Software Systems Graduate Student Scholarship*, *University of Washington*, *Bothell*, $40,650, Scholarship support for Jebediah Pavleas, Sep 2013 – June 2016.
- "Learning and evaluating game-themed library interface," *Undergraduate Research Scholarship*, *Office of Research*, *University of Washington*, *Bothell*, $750, Scholarship support for Abigail Carey and Fernando Arnez, March 2013.
- "Transfer Success from Serious Games Development to Secure Support from Local Industry Partner," *Teaching & Scholarship Enhancement Projects, University of Washington, Bothell*, $13,700, June 2010 – June 2012.
- "Coursework infrastructure development for Supporting Proposals to the NSF," *Worthington Scholar Award, University of Washington, Bothell*, $10,000, June 2004 – June 2006.
- *Worthington Technology Award, University of Washington, Bothell,*
  - "Assessment and Refinement of Programming-Base Problem-Solving Course for non-Technical Students," $10,000, June 2004 – June 2006.
  - "The Computing and Software Systems Center for Integrated Teaching, Learning and Scholarship," $11,380, June 2002 – June 2003 (with M. Fukuda, C. Jackels, and M. Stiber).
- "Instructional Infrastructure Development and Student Research Initiatives Based on Recent Research Efforts", *Worthington Distinguished Professor Award, University of Washington, Bothell*, $3,500, June 2001.

Infrastructure Awards:
- "Interdisciplinary Center for Multimedia Research," *University of Washington,* $40,000, May 2000 – May 2003 (M. Berg co-P.I.).
- "Distributed Systems Research Laboratory," *Office of Research, University of Washington*, $20,000, May 2000 (M. Berg co-P.I.).
- "Computing and Software Systems Research Laboratory Startup Fund," *University of Washington, Bothell,* $20,000, September 1999 – September 2000.
- "Office Equipment Grant," *University of Washington, Bothell*, $7000, September 1999.

Traveling and Conference Registration Awards:
- Conference Traveling Fund, *Teaching and Learning Center, University of Washington, Bothell*, 2003-2005: $1000 each year, 2006-2015: $800 each year.
- Faculty Fellow, Teaching and Learning Center Diversity Enhancement Project, UW Bothell, 2006-2007 ($1000 summer stipend).
- Research Circle, *University of Washington, Bothell,* September 2002-2004, 2006-2008 ($300 stipend each year).
- Institute for Teaching Excellence support, *University of Washington,* Summer 2002 ($1500 stipend).

Projects Funded by The Associated Students of the U.W. Bothell (ASUWB):
- "Support for Computer Animation Course for Non-CSS Major Students," *ASUWB Student Technology Fee Fund*, $6,000, June 2004.
- "Invited Speakers Series: Behind the scenes in making of contemporary video games," *ASUWB Service and Activities Fee Fund*, $3,700, June 2004.
- "A Course in Computer Graphics based on Pre-College mathematics for non-CSS students," *ASUWB Student Technology Fee Fund*, $19,090, February 2004.
- "Invited Speakers Series: Computer Graphics In Special Effects," *ASUWB Service and Activities Fee Fund*, $3,000, June 2003.

Other Grants (Received while at the National University of Singapore)
- "Interactive Infra-Structure Previewing System," *National University of Singapore,* Grant No: RP 940641, 1994-1996, S$89,875 (~*US$50,000*) (T. Tan P.I.).

- "3D Graphics Library for Windows," *Singapore National Computer Board,* Grant No: GR6324, 1994-1995, S$14,000 (~*US$7,500*) (E. Koh co-P.I.).
- "Custom Hardware for Parallel Ray Tracer," *National University of Singapore*, Grant No: RP930616, 1993-1995, S$78,000 (~*US$45,000*).

Hardware Donations

- Acer Windows Mixed Reality Device (5x) and SDK, $1,995.00, *Microsoft Mixed Reality Academic Seeding Program*, 2018.
- Microsoft .Net Gadgeteer Development Kits (15x Tinker, 1x Spider Starter), $1,769.59, *Microsoft Research Connection*, 2014.
- Android Phone Development Units (15x), $8250, *HTC Connected Services*, 2013.
- Windows Phone 8 Development Units (5x), $4,000, *Microsoft Mobiles Team*, 2013.
- Windows Phone 7.5 Development Units (10x), $5,000, *Microsoft Windows Phone 7 Team*, 2012.
- Kinect SDK for PC (2 Unit), $450, *Microsoft Game Studio*, 2012.
- Xbox 360, Kinect Unit, Games, *Microsoft Game Studio*, 2011 (secured donations for the UWB Library).
- Windows Phone 7 Development Units (34x), $17,000, *Microsoft Windows Phone 7 Team*, 2011.
- Telsa C1060 Computing Processor Board (NVIDIA CUDA Board), $1,500, *NVIDIA*, 2010 (with M. Stiber).
- Zune Development Units (26x), $3,500, *Microsoft XNA Team*, 2009.
- Xbox 360 Development Units (6x), $1,500, *Microsoft External Research*, 2006.

Software Donations

- Microsoft Windows Azure Cloud Computing Resources, *Microsoft Academic Developer Team*, $14,592-, 2011.
- Jupiter System SDK License, *Touchdown Entertainment (was LithTech Inc.)*, 2003-2004.
- Maya Unlimited (4 Seats), *Alias|Wavefront*, $156,671-, 1999-2006.

Books [+]*Graduate students* [*]*Undergraduate students*

- "Build your own 2D Game Engine and Create Great Web Games,"
  - **K. Sung**, J. Pavleas, M. Munson[+], and J. Pace, *APress*, 2nd Edition, ISBN-13: 978-1-4842-7376-0. Expected publication: Dec 2021.
  - **K. Sung**, J. Pavleas[+], F. Arnez[*], and J. Pace, *APress*, October 2015. ISBN-13: 978-14842-0953-0.
- **K. Sung**, G. Smith[+], "Basic Math for Game Development with Unity3D," *APress*, December 2019. ISBN-13: 978-1-4842-5442-4.
- M. Tanaya[+], H. Chen[+], J. Pavleas[+], and, **K. Sung**, "Building a 2D Game Physics Engine: Using HTML5 and JavaScript," *APress*, December 2016. ISBN-13: 978-1-4842-2582-0.
- J. Pavleas[*], J. Chang[+], **K. Sung**, and R. Zhu, "Learn 2D Game Development with C#," *APress*, December 2013. ISBN-13: 978-14302-66044.
- **K. Sung**, P. Shirley, and S. Baer[*], "Essentials of Interactive Computer Graphics: Concepts and Implementation," *A.K. Peters*, November 2008. ISBN-13: 978-1568812571.

Book Chapters [+]*Graduate students* [*]*Undergraduate students*

- B. Chau[+], R Nash, J. Pace, **K. Sung**, "Building Casual Games and APIs for Teaching Introductory Programming Concepts," (PP. 91-102), in *Software Engineering Perspectives in Computer Game Development*, Kendra M. L. Cooper, Editor, CRC Press, July 2021. [Based on Short Paper *in FDG 2015* with the same title]. ISBN-13: 978-1138503786.
- A. Hitchcock[+], and **K. Sung**, in "Encyclopedia of Computer Graphics and Games," Newton Lee, Editor, Springer Nature, Short Entries, https://link.springer.com/referencework/10.1007/978-3-319-08234-9:
  - "Game Physics Engine, Overview," https://doi.org/10.1007/978-3-319-08234-9_225-1, 2018.

- o "Game Loop and Typical Implementation," https://doi.org/10.1007/978-3-319-08234-9_224-1, 2018.
  - o "Interactive Computer Graphics and Model View Controller Architecture," https://doi.org/10.1007/978-3-319-08234-9_223-1, 2019.
- **K. Sung**, "Building Interactive Graphics Applications," (PP. 467-515), in P. Shirley and S. Marschner "*Fundamentals of Computer Graphics*," 3rd edition, A. K. Peters, 2009 (*revised from 2nd edition*).
- **K. Sung**, "Building Interactive Graphics Applications," (PP. 401-449), in P. Shirley "*Fundamentals of Computer Graphics*," 2nd edition, A. K. Peters, August 2005.
- **K. Sung**, and P. Shirley, "Ray Tracing with the BSP Tree," *Graphics Gems III,* PP. 271-274, David Kirk, Editor, Academic Press, San Diego, CA, August, 1992.

Patents

- A. Pearce, and **K. Sung**, "Analytic motion blur coverage in the generation of computer graphics imagery," *US Patent Number: 6,211,882*, April 3, 2001.
- A. Pearce, and **K. Sung**, "Analytic motion blur coverage in the generation of computer graphics imagery," *US Patent Number: 5,809,219*, September 15, 1998.
  - o *The implementation of this patent can be found in all Alias|Wavefront image generation systems. Images generated based on this patent can be found in movies like "Independence Day", or "Wing Commander."*

Refereed Publications $^{(+)}$*Graduate students* $^{(*)}$*Undergraduate students*

- G. Smith[+] and **K. Sung**, "Augmented Space Library: Hybrid P2P Library for Remote Cross Reality Investigations," in Proceedings of the 15th Annual International Technology, Education and Development (INTED 2021) Conference Proceedings, p. 988-997, March 2021. Available: http://dx.doi.org/10.21125/inted.2021.0227.
- K. Yang,[+] T. Brown,[+] and **K. Sung**, "AR Object Manipulation on Depth-Sensing Handheld Devices," Applied Sciences, vol. 9, no. 13, p. 2597, Jun. 2019 [Online]. Available: http://dx.doi.org/10.3390/app9132597.
- G. Smith[+] and K **Sung**, "Teaching Computer Graphics Based on a Commercial Product," *Eurographics 2019 - Education Papers*, The Eurographics Association, March 2019. https://doi.org/10.2312/eged.20191031.
- J. Albert[+] and **K. Sung**, "User-centric classification of virtual reality locomotion," in *Proceedings of the 24th ACM Symposium on Virtual Reality Software and Technology*, VRST 2018, Tokyo, Japan, November 28 - December 01, 2018, pp. 127:1–127:2. https://doi.org/10.1145/3281505.3283376.
- A. Hitchcock[+] and **K. Sung**, "Multi-view augmented reality with a drone," in *Proceedings of the 24th ACM Symposium on Virtual Reality Software and Technology*, VRST 2018, Tokyo, Japan, November 28 - December 01, 2018, pp. 108:1–108:2. https://doi.org/10.1145/3281505.3283397.
- N. Fiebelkorn[*], B. Clark[*], **K. Sung**, "Would Gamers Collaborate Given the Opportunity?" *in Proceedings of the 13th International Conference on the Foundations of Digital Games (FDG '18)*, Malmo, Sweden, PP. 47:1--47:4 June 2018. http://doi.acm.org/10.1145/3235765.3236497.
- **K. Sung**, K. Gourd, A. McMahon, K. Mansoor[*], R. Gaggero[+], "A Collaborative Course for Learning How to Teach Summer Java Coding Camps," *Proceedings of the 49th SIGCSE Technical Symposium on Computer science education* (Baltimore, MD, USA), *SIGCSE '18*, PP. 515--520, February 2018 [*Acceptance rate: 161 of 459 (~ 35%)*]. https://doi.org/10.1145/3159450.3159610.
- M. Tanaya[+], K. Yang[+], T. Christensen[*], S. Li[*], M. O'Keefe[*], J. Fridley, **K. Sung**, "A Framework for Analyzing AR/VR Collaborations: An Initial Result," *IEEE International Conference on Computational Intelligence & Virtual Environments for Measurement Systems and Applications (CIVEMSA)*, PP. 111-116, June 2017. http://doi.org/10.1109/CIVEMSA.2017.7995311.
- **K. Sung**, R. Nash, J. Pace, "Building Casual Game SDKs for Teaching CS1/2, A Case Study," *The Journal of Computing Sciences in Colleges, Vol. 32, No. 1*, PP. 129-143, (Proceedings of CCSC-NW 2016), Oct 2016.
- B. Chau[+], R. Nash, **K. Sung**, J. Pace, "Building Casual Games and APIs for Teaching Introductory Programming Concepts, " Short Paper *in FDG 2015*, June 2015.
- **K. Sung** and L. Snyder, "A Case of Computer Science Principles With Traditional Text-Based Programming Languages," *CCSC-NW 2014*, October, 2014.

- **K. Sung** and A. Samuel, "Mobile Application Development Classes for the Mobile Era," *Proceedings of the 2014 conference on Innovation & technology in computer science education (ITiCSE '14)*, PP. 141-146, June 2014.

- H. Asuncion, R. Angotti, **K. Sung**, "'Sustainable Projects for Software Engineering Courses: Collaborating with Technology Courses," *Work In Progress Paper, Proceedings of the Frontiers in Education Conference*, October 2012.

- Jack Keng-Wei Chang[*], Long Hoang Dang[*], Jebediah Pavleas[*], Joseph F. McCarthy, **K. Sung**, and Jason Bay, "Experience with Dream Coders: Developing A 2D Role Playing Game For Teaching Introductory Programming Concepts," *The Journal of Computing Sciences in Colleges, Vol. 28, No. 1,* PP. 227-236, October 2012 (Proceedings of the Fourteenth Annual CCSC-NW Conference). [*]*Undergraduate students*.

- **K. Sung**, C. Hillyard, R. Angotti, M. Panitz, D. Goldstein, J. Nordlinger, "Game-Themed Programming Assignment Modules: A Pathway for Gradual Integration of Gaming Context into Existing Introductory Programming Courses," *IEEE Transactions on Education*, *Vol. 54*, *No. 3*, PP. 416-427, August 2011.

- H. Asuncion, D. Socha, **K. Sung**, S. Berfield, and W. Gregory, "Serious Game Development As An Interactive User-Centered Agile Software Project," *IEEE International Conference on Software Engineering (ICSE) Workshops, First Games and Software Engineering Workshop (GAS 2011)*, May 2011.

- P. Drake, and **K. Sung**, "Teaching Introductory Programming with Popular Board Games," *Proceedings of the 42nd SIGCSE Technical Symposium on Computer science education* (Dallas, TX, USA), *SIGCSE '11*, PP. 619--624, March 2011[*Acceptance rate: 107 of 315 (~ 34%)*].

- M. Panitz, **K. Sung**, R. Reed-Rosenberg, "Game Programming in CS0: A Scaffolded Approach," *The Journal of Computing Sciences in Colleges, Vol. 26, No. 1,* PP. 126-132, October 2010 (Proceedings of the Twelfth Annual CCSC-NW Conference).

- R. Angotti, C. Hillyard, M. Panitz, **K. Sung**, K. Marino, "Game-Themed Instructional Modules: A Video Case Study," *Proceedings of the Fifth International Conference on the Foundations of Digital Games* (Monterey CA, USA) *FDG '10*, PP. 9-16, June 2010 [*Acceptance rate: 32 of 94 (~ 34%)*].

- C. Hillyard, R. Angotti, M. Panitz, **K. Sung**, J. Nordlinger, D. Goldstein, "Game-Themed Programming Assignments for Faculty: A Case Study," *Proceedings of the 41st SIGCSE Technical Symposium on Computer Science Education* (Milwaukee, WI, USA) *SIGCSE '10*, PP. 270-274, March 2010 [*Acceptance rate: 103 of 303 (~34%)*].

- **K. Sung**, "Computer Games and Traditional Computer Science Courses," *Communications of the ACM*, *Vol. 52*, *No. 12*, PP. 74-78, December 2009 (*invited paper, peer reviewed*).

- P. Shirley, **K. Sung**, E. Brunvand, A. Davis, S. Parker, S. Boulos, "Fast Ray Tracing and The Potential Effects on Graphics and Gaming Courses," *Computer & Graphics, Vol. 32, Issue 2,* PP. 260-267, April 2008 (invited full-length paper based on *ACM SIGGRAPH 2007 Educator's Program* conference paper).

- **K. Sung**, M. Panitz, R. Rosenberg, R. Anderson, "CS1/2 Game-Themed Programming Assignments for Faculty," *Journal of Game Development*, *Vol. 3*, *Issue 2*, March 2008, PP. 27-47, (invited full-length paper based on *SIGCSE 2008* conference paper).

- **K. Sung**, M. Panitz, S. Wallace, R. Anderson, J. Nordlinger, "Game-Themed Programming Assignments: The Faculty Perspective," *Proceedings of the 39th SIGCSE Technical Symposium on Computer Science Education* (Portland, OR, USA, March 12-15, 2008) *SIGCSE '08*, PP. 300-304 [*Acceptance rate: 100 of 324 (~31%)*].

- **K. Sung**, M. Panitz, R. Rosenberg, R. Anderson, "Assessing Game-Themed Programming Assignments for CS1/2 Courses," *Proceedings of the Third International Conference on Game Development in Computer Science Education (GDCSE'08)*, Feb 2008 [*Acceptance rate: 15 of 60 (25%)*].

- P. Shirley, **K. Sung**, E. Brunvand, A. Davis, S. Parker, S. Boulos, "Rethinking Graphics and Gaming Courses Because of Fast Ray Tracing," *SIGGRAPH 2007 Educator's Program Conference CD/DVD-ROM*, August 2007.

- **K. Sung**, P. Shirley, R. Reed-Rosenberg, "Experiencing Aspects of Games Programming in an Introductory Computer Graphics Course," *SIGCSE Bulletin, Vol. 39, Issue 1,* March, 2007, PP. 249-253, (*Proceedings of the 38th SIGCSE Technical Symposium on Computer Science Education, SIGCSE 07*) [*Acceptance rate: 108 of 316 (~34%)*].

- **K. Sung**, A. Leong, and R. Reed-Rosenberg, "A Programming Course for Business MIS Students," *ASEE/IEEE Frontiers In Education 35th Annual Conference, Conference Proceedings (Conference CD)*, October 2005.

- **K. Sung**, and P. Shirley, "Algorithm Analysis for Returning Adult Students," *The Journal of Computing Sciences in Colleges, Vol. 20, No. 2,* PP. 62-72, December 2004 (Proceedings of the Sixth Annual CCSC-NW Conference).
- **K. Sung**, and P. Shirley, "A Top-Down Approach to Teaching Introductory Computer Graphics," *Computer & Graphics, Vol. 28, Issue 3,* PP. 383-391, June 2004 (invited full-length paper based on *ACM SIGGRAPH 2003 Educator's Program* conference paper).
- **K. Sung**, and P. Shirley, "A Top-Down Approach to Teaching Introductory Computer Graphics," *ACM SIGGRAPH 2003: Educator's Program from the 30th annual conference on Computer graphics and interactive techniques,* PP. 1-4, *New York, NY, USA 2003. ACM Press.) (also, Conference CD/DVD-ROM Disc)* July 2003.
- **K. Sung**, A. Pearce, and C. Wang `"Spatial-Temporal Antialiasing," *IEEE Transactions on Visualization and Computer Graphics, Vol. 8, No.2,* PP. 144-153, April-June 2002.
- C. Wang, and **K. Sung**, "Multi-Stage N-rooks Sampling Method," *Journal of Graphics Tools, Vol. 4, No. 1,* PP. 39-47, 1999.
- **K. Sung**, J. Craighead, C. Wang, S. Bakshi, A. Pearce, and A. Woo, "Design and Implementation of the Maya Renderer," *Proceedings of Pacific Graphics '98*, PP. 150-159, 1998 (*invited paper*, *peer reviewed*).
- J. Loh, **K. Sung**, A. Ananda, and E. Koh, "Client-Server Based Ray-tracer using ASTRA - an Asynchronous RPC Mechanism," *The Journal of Computer Communications, Vol. 19*, PP. 445-455, 1996.
- **K. Sung**, J. Loh, and A. Ananda, "Ray Tracing in a Distributed Environment," *Computer & Graphics, Vol. 20, No. 1*, PP. 41-49, 1996.
- **K. Sung**, and W. Kubitz, "Tracing Rays with the Area Sampling Machine," *The Visual Computer, Vol. 11, No. 9*, PP. 477-496, November 1995.
- K. Lam, **K. Sung**, and L. Hui, "A Cardinalized Binary Representation for Exponentiation," *The Journal of Computers and Mathematics with Applications, Volume 30, Number 8*, PP. 33-39, 1995.
- A. Fang, **K. Sung**, and P. Heng, "Interactive Surface Rendering for Medical Visualization," *Graphics Interface '95*, PP. 65-74, May 1995.
- **K. Sung**, "The Area Sampling Machine," *The Third Eurographics Workshop on Rendering,* PP. 147-160, May, 1992.
- **K. Sung**, "Area Sampling Buffer: Tracing Rays with Z-Buffer Hardware, " *Computer Graphics Forum, Vol. 11, No. 3*, PP. 299-310, September 1992, (*Proceedings of the Eurographics '92* Conference).
- **K. Sung**, "A DDA Octree Traversal Algorithm for Ray Tracing," *Eurographics '91*, PP. 73-85, September 2-6, 1991.
- P. Shirley, **K. Sung**, and W. Brown, "A Ray Tracing Framework for Global Illumination Systems," *Graphics Interface '91*, PP. 117-128, June 3-7, 1991.
- **K. Sung**, G. Rogers, and W. Kubitz, "A Critical Evaluation of PEX," *IEEE Computer Graphics and Applications, Vol. 10, No. 6*, PP. 65-75, November 1990.
- G. Rogers, **K. Sung**, and W. Kubitz, "Combining Graphics and Windowing Standards in the XGKS System," *Computer Graphics Forum, Vol. 9*, PP. 229-237, 1990.

Peer Reviewed Tutorials/Workshops/Panels/Posters (+)*Graduate students* (*)*Undergraduate students*

- J. Albert and **K. Sung**, "User-centric classification of virtual reality locomotion," Poster in the *24th ACM Symposium on Virtual Reality Software and Technology, VRST 2018*, Tokyo, Japan, Nov 28 - Dec 01, 2018.
- A. Hitchcock and **K. Sung**, "Multi-view augmented reality with a drone," Poster in the *24th ACM Symposium on Virtual Reality Software and Technology*, VRST 2018, Tokyo, Japan, Nov 28 - Dec 01, 2018.
- N. Fiebelkorn(*), B. Clark(*), **K. Sung**, "Would Gamers Collaborate Given the Opportunity?" Poster *in the 13th International Conference on the Foundations of Digital Games (FDG '18), Malmo, Sweden,* June 2018.
- R. Bryant (Moderator), D. Ely, R. Lewis, **K. Sung**, and B. Wilson, "How AP Computer Science Principles and AP Computer Science A fit with our schools," *The Journal of Computing Sciences in Colleges, Vol. 32, No. 1, Panel*, PP. 176-179, (Proceedings of CCSC-NW 2016), Oct 2016.
- **K. Sung**, J. Pace, and R. Nash, "Learn CS1/2 by Playing and Building Commercial Grade Casual Games," *SIGCSE 2016, Workshop*, March, 2016.

- **K. Sung**, J. Pace, and R. Nash, "Learn CS1/2 by Playing and Building Commercial Grade Casual Games," *Foundations of Digital Games 2015, Tutorial*, June, 2015.
- **K. Sung**, and M. Panitz, "Casual Game as CS1/2 Teaching Modules or Exercises," *The Journal of Computing Sciences in College*, Vol. 29, No. 1, Tutorial offered at the Sixteenth Annual CCSC-NW Regional Conference, October, 2014.
- V. Larios, and **K. Sung**, "Open Source and Freeware Tools for 3D Game Development Courses," *workshop offered at SIGCSE 2011*, March 2011 [*Acceptance rate: 35 of 78 (45%)*].
- M. Panitz, **K. Sung**, J. Nordlinger, "Develop Game-Themed Examples for CS1/2 without background in Graphics or Games," Workshop offered at *ACM SIGCSE'10 Conference*, March 2010 [*Acceptance rate: 39 of 86 (45%)*].
- M. Lewis, S. Leutenegger, M. Panitz, and **K. Sung** (Organizer/Moderator), and S. Wallace, "Introductory Programming Courses and Computer Games," Panel presentation, *ACM SIGCSE'09 Conference Proceedings*, March 2009, PP. 204-205 [*Acceptance rate: 11 of 20 (55%)*].
- G. Orr, **K. Sung**, B. Wilson, and D. Wolff (Organizer/Moderator), "The Content And Role of The Computer Graphics Course in Small Liberal Arts Colleges," Panel presentation, *CCSC-NW 2008 Conference*, October, 2008.
- M. Panitz, and **K. Sung**, "Incrementally Incorporating Video Games Into Instruction Using XNA Game-Themed Assignments," Tutorial offered at the *CCSC-NW 2008 Conference*, October, 2008.
- **K. Sung**, M. Panitz, and R. Anderson, "Program Development with Graphical User Interface," *The Journal of Computing Sciences in College*, Vol. 23, No. 2, PP. 49-50, Tutorial offered at the Ninth Annual CCSC-NW Regional Conference, October, 2007.
- **K. Sung**, and M. Panitz, "Developing Applications on the Xbox 360 Console," *The Journal of Computing Sciences in College*, Vol. 23, No. 2, PP. 71-72, Tutorial offered at the Ninth Annual CCSC-NW Regional Conference, October, 2007.
- E. Angel, S. Cunningham, P. Shirley, and **K. Sung** (Organizer/Moderator), "Teaching Computer Graphics without Raster-Level Algorithm," *SICCSE Bulletin, Vol. 38, Issue 1,* March, 2006, PP. 266-267 (Panel Presentation, *Proceedings of the 37th SIGCSE Technical Symposium on Computer Science Education*, *SIGCSE 06*).
- **K. Sung**, "Working with the Maya Renderer: The Technical Details," Tutorial offered at the Pacific Graphics '98 Conference, 1998.

Professional Columns/Guest Editorials [+]*Graduate students* [*]*Undergraduate students*

- **K. Sung**, "Welcome to The 2018 CCSC Northwest Conference," *Guest Editor's Introduction*, *The Journal of Computing Sciences in Colleges, Vol. 34, No. 1,* PP. 160, October 2018 (Proceedings of the Twentieth Annual CCSC-NW Conference).
- Computing Now, IEEE on-line magazine, *http://www.computer.org/portal/web/computingnow/archive/july2012*, July, 2012.
- B. Chau[+], A. Robinson[*], J. Pace, R. Nash, and **K. Sung**, "Corrupted: A Game to Teach Programming Concepts," *Entertainment Computing Column*, *IEEE Computer*, Vol. 47, No. 12, PP. 86-89, December, 2014. [+]*Graduate student*, [*]*Undergraduate student*.
- F. Arnez[*], J. Pace, **K. Sung**, "Learning While building Games for Teaching," *Entertainment Computing Column*, *IEEE Computer*, Vol. 47, No. 4, PP. 88-91, April, 2014. [*]*Undergraduate student*.
- **K. Sung,** "Culture- and Heritage-Driven Computing R&D in Asia," *Guest Editor's Introduction*, Computing Now, IEEE on-line magazine, *http://www.computer.org/portal/web/computingnow/archive/july2012*, July, 2012.
- C. Chang, V. Getov, **K. Sung,** "Computing in Asia: A Sampling of Recent Success Stories," *Guest Editors' Introduction, IEEE Computer*, Vol. 45, No. 6, PP. 21-23, June, 2012.
- H. Tsai[+], **K. Sung,** "Mobile Applications and Museum Visitation," *Entertainment Computing Column*, *IEEE Computer*, Vol. 45, No. 4, PP. 95-98, April, 2012. [+]*Graduate student*.
- **K. Sung**, "Recent Videogame Console Technologies," *Entertainment Computing Column*, *IEEE Computer*, Vol. 44, No. 2, PP. 91-93, February, 2011.

Broader Impact Dissemination [+]*Graduate students* [*]*Undergraduate students*
- Pacific Science Center VR Coding Camps, Coordinated and taught CSS students to be camp instructors based on Cross Reality Collaboration Framework Results

- o Princeton See⁽⁺⁾, **K. Sung**, 2 sessions offered, August 2020. *Cancelled due to the COVID-19 pandemic.*
- o Christopher Kelley⁽*⁾, **K. Sung**, 2 sessions offered, August 2019.
- o **K. Sung**, Arrido Arfiadi⁽*⁾,2 sessions offered, August 2018.
- o **K. Sung**, Rafael Machado de Lima Silva, 2 sessions offered, July 2017.
- Pacific Science Center Java Coding Camps, Coordinated and taught CSS students to be camp instructors based on Game-Themed Computer Science Results
  - o P. See⁽⁺⁾, **K. Sung**, 3 sessions offered, July 2020. *One session cancelled due to the COVID-19 pandemic.*
  - o Christopher Kelley⁽*⁾, **K. Sung**, 4 sessions offered, July 2019.
  - o **K. Sung**, Nico Espina⁽*⁾, 4 sessions offered, July 2018.
  - o **K. Sung**, Karen Gourd, Ann McMahon, 8 sessions offered, July 2017.
  - o **K. Sung**, Carolyn Brennan, 2 sessions offered, July 2016.
- **K. Sung**, Nancy Kool, *Jane Addams Middle School after school coding classes*, Co-Taught CSS295 integrated Game-Themed Materials and led CSS students in teaching the after school coding class, Spring 2016.

Invited Game Demos/Posters ⁽⁺⁾*Graduate students* ⁽*⁾*Undergraduate students*

- Jason Pace, **K. Sung**, "Commercializing videogames for teaching programming," *Innovation Open House*, *Hosted by C4C and UW Foster School of Business*, University of Washington Seattle, October 2014.
- Jebediah Pavleas⁽*⁾, Jack Keng-Wei Chang⁽*⁾, Robin Angotti, and, **K. Sung**, "KinectMath: a tool for transforming math education," *CCSC-NW Poster Session*, October, 2012. ⁽*⁾*Undergraduate students*.
- E. Hills, C. Hillyard, **K. Sung**, K. Foster, "Animations, Video Games, and the Social Webs: An AP Computer Principles Class," Poster for the UnPoster Session, *Computing Education for the 21ˢᵗ Century (CE21) PI and Community Meeting*, Washington, D.C., Feb 2012.
- A. Amlag⁽*⁾, S. Krolikowski⁽*⁾, B. McMahon⁽*⁾, S. McPherson⁽*⁾, K. Phillips⁽*⁾, and **K. Sung**, "Sammy goes to UWB – A Game for UWB Admissions Office," Poster, *Serious Games Winter School 2010*, Puerto Vallarta, Mexico, February 12-14, 2010. ⁽*⁾*Undergraduate students*.
- **K. Sung**, "Alphabet Hero – A Game for Programming Binary Search Tree," Game DemoFes, *The Fourth International Conference on the Foundations of Digital Games (ICFDG 2009)*, Orlando, Florida, April 2009.

Invited Short Courses/Workshops/Presentations

- "Introduction to Game Development," Invited Short Course,
  - o Invited two-week on-line short course, *Summer Workshop*, *School of Computing*, *National University of Singapore,* July 2021. (Host: Professor TiowSeng Tan).
  - o Invited two-week short course, *Summer Workshop*, *School of Computing*, *National University of Singapore,* July 2020. (Host: Professor TiowSeng Tan). *Cancelled due to the COVID-19 pandemic.*
  - o Invited one-week short course, *School of Software Engineering*, *Xi'an Jiaotong University* (西安交通大学)*,* Xi'an, China, April 2020. (Host: Professors 唐亚哲, 王龙翔). *Cancelled due to the COVID-19 pandemic.*
- "Introduction to 2D Game Engine Development," Invited Short Course,
  - o Invited two-week short course, *Summer Workshop*, *School of Computing*, *National University of Singapore,* July 2019, July 2018. (Host: Professor TiowSeng Tan)
  - o Invited one-week short course, *School of Software Engineering*, *Xi'an Jiaotong University* (西安交通大学)*,* Xi'an, China, March 2019. (Host: Professors 唐亚哲, 王龙翔)
  - o Invited two-week short course, *Suzhou Research Institute*, *National University of Singapore,* July 2017, July 2016. (Host: Professor TiowSeng Tan)
- "Engaging Learners: From Videogames to Cross Reality Collaborations," Invited Talk,
  - o *Computer Science Department*, *National Chengchi University* (國立政治大學), Taipei (臺北), Taiwan, April 2018. (Host: Professor 李蔡彥)
  - o *Department of Computer Science and Information Engineering*, *National Taitung University* (國立臺東大學), Taitung (臺東), Taiwan, April 2018. (Host: Professor 李佳衛)

- o *Department of Computer Science and Information Engineering*, *National Cheng-Kung University* (國立成功大學)*,* Tainan (台南), Taiwan, March 2017. (Host: Professor 謝孫源)
- "The Cross Reality Collaboration Framework," Invited Talk,
  - o *Faculty of Computing and Informatics*, *Multimedia University*, Cyberjaya, Selangor, Malaysia, December 2017. (Host: Dr. YaPing Wong)
  - o *ASUS Technology*, Suzhou (苏州), China, November 2017. (Host: Professor TiowSeng Tan and Generation Manager of ASUS Technology Suzhou 高致遠).
- "Computing Professional and You," *National University of Singapore Enterprise Immersion Program for High School Students, Suzhou Research Institute*, Suzhou (苏州), China, November 2017. (Host: Professor TiowSeng Tan).
- "Exploring AR and VR in the Ultra Reality Sandbox," *The Winter'17 Research In Progress Series*, *University of Washington Bothell*, Feb 2017.
- "Learnings from Building Videogames for Learning," Invited Talk,
  - o *Department of Computer Science and Information Engineering, National Dong Hwa University* (國立東華大學)*,* Hualien (花蓮), Taiwan, March 2016. (Host: Professor 江政欽)
  - o *Sichuan University* (四川大学), Chengdu (成都), China, July 2015. (Host: Professor 彭舰)
  - o *Department of Computer Science, National Chiao Tung University* (國立交通大學), Hsinchu (新竹), Taiwan, April 2015. (Host: Professor 林盈達)
  - o [Invited Keynote Address](#), *The 3rd International Conference on Interactive Digital Media 2014 (ICIDM 2014)*, Kota Kinabalu, Sabah Malaysia, December 2014.
  - o [University of Malaysia Sabah](#), Kota Kinabalu, Sabah Malaysia, December 2014. (Host: Dr. Abdullah Bade)
- "Mobile Application Development," Invited two-week short course, *National University of Singapore, Suzhou Research Institute*, July 2014, August 2015.
- "Mobile Application Development Programming Marathon," [Invited one-week short course](#), *International Exchange Camp of Computer Institute*, *Sichuan University* (四川大学)*,* Chengdu (成都)*,* China, July 2015.
- R. Nash, **K. Sung**, and J. Pace, "Learn CS1/2 by Playing and Building Commercial Grade Casual Games," NSF Showcase, *SIGCSE 2015*, March 2015.
- *Computing Education Innovation Workshop 2014*, Organized by Computing Research Association (CRA), Sponsored by NSF, Arlington, VA, June 11-13, 2014.
- "Game-Themed Programming Materials for the Faculty," Invited Presentation, *Computer Science Department*, *Seattle University*, July 2013.
- **K. Sung**, M. Panitz, and J. Pace, "Game-Themed Introductory Programming for Faculty," NSF Showcase, *SIGCSE 2013*, March 2013.
- "Progression in Creative Design," Invited Exhibition, *Technology Innovation and Creativity*, *University of Washington Bothell Chancellors Forum*, February 2013.
- "Building a Pong Game with Object Oriented Programming Language: No background required," Invited Workshop, *Engaging Design*, *University of Washington Bothell Chancellors Forum*, February 2013.
- "Introduction to Game Programming with XNA and Windows Phone 7," Invited One Week Short Course, *Warsaw School of Computer Science,* Warsaw, Poland, May 2012.
- *NSF Computing Education for the 21st Century (CE21) PI and Community Meeting*, Feb 2012, Washington, D.C., February 2012.
- "Game-Themed Computer Science Education: Empowering the Faculty," Invited Presentation, *Technology Innovation and Creativity*, *University of Washington Bothell Chancellors Forum*, February 2012.
- "Mobile Computing, Smartphones, and Existing Computer Science Classes," *SmartPhones in the Curriculum Workshop (SMACK 2011), 24th IEEE Conference on Software Engineering Education and Training (CSEE&T)*, May 2011.

- *Digital View of Heritage Painting (Life along the Bian River at the Pure Brightness Festival) in the Beijing Palace Museum*, Invited Participant, *Microsoft Research Asia*, Beijing, March 2011.
- "Game-Themed CS Education: Empowering the Faculty," and "Video Game Design Workshop," Invited 2-day visit, *Department of Computer Science, Iowa State University*, Ames, Iowa, November 2010.
- "Video Game Design Workshop," Invited two-day Workshop, *Faculty of Physics, Universidad Autonoma de Nuevo Leon (UANL)*, Monterrey, Mexico, October 2010.
- *Collaborating Across Silos to Create Interdisciplinary Game Design and Development Curriculum*, Organized by Digital Media Program, East Tennessee State University, Sponsored by NSF (CPATH Grant CCF 0722261), Johnson City, TN, September 17-18, 2010 [*Application reviewed, invited participant and panelist*].
- *Math/Science Partnership Program Summer Institute 2010*, As part of the Math2.0 Project, Supported by *Washington State Higher Education Coordinating Board*, *Educators for the 21st Century Project*, Wenatchee, WA, August 11-12, Omak, WA, August 17-19, 2010 [*Invited Workshop Technology Consultant*].
- *Games in Engineering and Computer Science* (*GECS*) *Workshop*, *served as a panelist on Games in Computer Science panel*, Organized by Texas A&M University, Sponsored by NSF (CCLI Grant No. 0938176), Arlington VA, June 3-4, 2010 [*Application reviewed, invited participant and panelist*].
- "Game-Themed CS Education: Empowering the Faculty," Invited Presentation, *Penn State University Educational Gaming Initiative Exploration Meeting with Microsoft Representative*, Microsoft Executive Briefing Center, Redmond, Washington, May 27, 2010.
- *Northwest Distributed Computer Science Department (NWDCSD) Spring* and *Summer Workshops*, Organized jointly by Washington State University Vancouver, Willamette University, and Gonzaga University, Sponsored by NSF (CPATH Grant No. 0829651), Vancouver, WA, May 15 and August 14, 2010 [*Invited Workshop Participant*].
- "Developing Game-Themed Applications With XNA," Invited 3-day workshop, *Serious Games Winter School 2010*, Puerto Vallarta, Mexico, February 12-14, 2010 [*Sponsored by Information Systems Department, University of Guadalajara*].
- "Breaking into the Game Industry the Educated Way," Invited Panelist, *PAX | The Penny Arcade Expo!*, Seattle, Washington, September 4th 2009.
  - *http://www.youtube.com/watch?v=5jo3qCzbsag*
- "Developing Game-Themed Applications for Teaching Introductory Programming Courses," Invited two-day Workshop, *Beijing University of Technology*, Beijing, China, July 2009.
- "XNA Game-Themed Applications for Teaching Introductory Programming Courses," Invited Pre-Conference Workshop, *The Fourth International Conference on the Foundations of Digital Games (ICFDG 2009)*, Orlando, Florida, April 2009.
- "XNA Game-Themed Applications for Teaching Introductory Programming Courses," Invited full-day Workshop, *Microsoft Research*, Redmond, Washington, April 2009.
  - *https://www.microsoft.com/en-us/research/video/developing-game-themed-applications-with-xna-game-studio-session-1/*
  - *https://www.microsoft.com/en-us/research/video/developing-game-themed-applications-with-xna-game-studio-session-2/*
- "Game-Themed CS Education: Empowering the Faculty," Invited Presentation, *Microsoft External Research Symposium*, March 30-31, 2009, Redmond, Washington.
  - Lecture: *http://research.microsoft.com/en-us/um/redmond/events/ersymposium2009/16940/lecture.htm*
  - Poster: *http://research.microsoft.com/en-us/events/ersymposium2009/themed_cs_edu-empowering_faculty.pdf*.
- "XNA Game-Themed Applications for Teaching Introductory Programming Courses," Invited 3-day Workshop, *Microsoft Mexico* and *Digital Arts University*, Guadalajara, Mexico, February 2009.
- "Top-Down Approach to Teaching Computer Graphics and Game Development," Invited Presentation, *Institute of Technology Seminar*, University of Washington, Tacoma, Washington, January 2009.
- "Programming 2D games without games or graphics background," Invited Workshop, *Multimedia Development Corporation*, Cyberjaya, Selangor, Malaysia, July 2008.
- "Developing Game-Themed Applications with XNA Game Studio," Invited full-day Workshop, *Microsoft Research*, Redmond, Washington, April 2008.

- "Developing Applications for the Xbox 360 Console," Invited Talk, *Computer Science Department, Brigham Young University*, March 2008.
- "Developing Programming Assignments on the Xbox 360 Console," Invited full-day Workshop, *SIGCSE 2008*, March 2008.
- "Developing Game-Themed Programming Assignments," Invited Talk, *GDCSE'08 Conference*, February 2008, *MSR Computer Gaming Resource Kit V4*.
- "Gaming-Themed Programming Assignments for CS1/2 Courses," Microsoft Research, *Faculty Summit 2007*, Redmond, Washington, July 2007.
- "Integrating Computer Gaming into Computer Graphics Courses," Microsoft Research Asia, *Gaming and Graphics Workshop*, Beijing, China, May 2007.
- "Integrating Computer Gaming into Computer Graphics Courses," Computer Science Department, *Shandong University*, Jinan, China, May 2007.
- "Learning Computer Graphics Programming Through Examples," NSF CCLI Showcase, *SIGCSE 2007*, March 2007.
- "Design and Implementation of the Maya Renderer," Invited Speaker, *Pacific Graphics '98*, Singapore, October 1998.
- "Advanced Computer Graphics: Topics in Rendering," Invited one week short course given in Chinese (Mandarin), Institute of Information Science, Academia Sinica, Taiwan, July 1993.

Work/Results Featured in Public Publications/Websites

- "Firefighters can train in VR, save water," Feature Story on UWB Website, https://www.uwb.edu/news/september-2020/virtual-fire-engine, September 3, 2020.
- Results from the **Expanding Interactive College Affordability Prototype Model**:
  - "Defining College Affordability Matters More Now, Than Ever: Part II," By Perry Papka, The Prichard Committee for Academic Excellence, State of Kentucky, https://www.prichardcommittee.org/defining-college-affordability-matters-more-now-than-ever-part-ii/, June 17, 2020.
  - Reference from Kentucky Council on Postsecondary Education website: http://cpe.ky.gov/data/index.html (Under interactive tools, "*Financial Aid by State*"), Sep 2019.
  - "Ingenious Way to Visualize College Affordability." By Douglas Esser, Feature Story on UWB Website, http://www.uwb.edu/news/june-2017/college-affordability-model, June 6, 2017.
  - Cited in Washington State Senate Higher Education hearing on Feb 2, 2017: www.tvw.org/watch/?clientID=9375922947&eventID=2017021039&eventID=2017021039&startStreamAt=1840&stopStreamAt=2130&autoStartStream=true
- "Developing fun new science camps for kids," Feature Story on UWB Website, https://www.uwb.edu/news/january-2019/pacific-science-center-camps, January 31, 2019.
- "Amazing skills in virtual reality summer camp," By Douglas Esser, Feature Story on UWB Website, http://www.uwb.edu/news/august-2017/vr-camps, August 28, 2017.
- "UW Bothell team in Imagine Cup US finals," by Douglas Esser, Feature Story on UWB Website, http://www.uwb.edu/news/april-2017/imagine-cup, April 14, 2017.
- "Computer Prof's Coding Grads Are in Demand," by Douglas Esser, Feature Story on UWB Website, http://www.uwb.edu/news/march-2016/coding-grads, March 4, 2016.
- "UW Bothell designs Ghostlight, a free computer game that packs a powerful educational and entertainment punch – in a nice way", Feature Story on UWB Website, http://www.uwb.edu/news/press/2014/103114, October 2014.
- Public blog related to the UWB CS Principles (BCUSP-110 or BCUSP-161) class:
  - "DC1 Final Projects: Fantastic UWB Student Work!," UW Bothell Learning Technologies Blog, January 2011, *http://depts.washington.edu/etuwb/ltblog/?p=1873*
  - "CS AP Principles—UW Bothell," by Alfred Thompson, MSDN Blogs, *http://blogs.msdn.com/b/alfredth/archive/2011/12/20/cs-ap-principles-uw-bothell.aspx*, December 2011.

- Public blogs, reports about the KinectMath project:
  - "Kinect Math Makes Learning a Full-Body Experience," *http://www.edtechmagazine.com/k12/article/2012/10/kinect-math-makes-learning-full-body-experience*, Jennifer Roland, October 2012.
  - "Students come from all over the country for Microsoft's software developing competition," by Net Levy, Bellevue Reporter, *http://www.bellevuereporter.com/news/148606945.html*, April 2012.
  - "Students put tech to good use in Microsoft's Imagine Cup contest," by Janet Tu, Seattle Times, *http://seattletimes.nwsource.com/html/localnews/2018054597_microsoftimagine24.html*, April 2012.
  - "舉手投足,跑跳搖擺也能學歷史和數學," (in Chinese, rough translation, "*History and math can be learned with body movements*"), *http://www.microsoft.com/taiwan/education/epaper/no_4/hot_tip.aspx*, March 2012.
  - "Video: UW students utilize the Kinect to teach math," by John Cook, GeekWire, *http://www.geekwire.com/2012/video-kinect-teach-math*, January 2012.
  - "Bothell teams advance in Imagine Cup – Watch the videos," News Digest, UW Today, *http://www.washington.edu/news/articles/news-digest-paperback-edition-students-advance-faculty-honors*, January 9, 2012
  - "Kinecting With Students: UW Bothell students and faculty get creative with math education," by Nathan Ureta, The Daily News (University of Washington campus wide student daily newspaper), *http://dailyuw.com/news/2012/jan/04/kinecting-students/*, January 4, 2012.
  - "Reaching out and touching Math with Kinect Math," by Greg Duncan, Coding4Fun, Channel-9, *http://channel9.msdn.com/coding4fun/kinect/Reaching-out-and-touching-Math-with-Kinect-Math*, December 2011.
  - "KinectMath Teaching Tool," by Jared St. Jean, Develop Kinect Blog, *http://developkinect.com/news/educational/kinectmath-teaching-tool*, December 2011.
  - "Classrooms of Tomorrow, Today: Kinect Math App Available for Download," by Johnny Kissko, Kinect Education Blog, *http://www.kinecteducation.com/blog/2011/11/29/classrooms-of-tomorrow-today-kinect-math-app-available-for-download/*, December 2011.
- "Game Creation for a Difference," by Brooklyn Roberts, Husky Herald (University of Washington Bothell student run on-line newspaper), *http://www.huskyherald.com/2010/11/04/game-creation-for-a-difference/*, November 4th, 2010.
- Materials archived on *Microsoft Higher Education* curriculum resource site, last access (April 2011): *http://www.microsoft.com/education/highered/Faculty/Curriculum/XNA/*
- Materials archived on *Microsoft Faculty Connection* site (April 2011):
  - Game-Themed Workshop: (4+ hours of lecture recording on designing and developing game-themed CS1 materials): *https://www.facultyresourcecenter.com/curriculum/pfv.aspx?ID=8432*
  - CS1 Workbook: (600+ pages Game-Themed CS1 teaching materials): *https://www.facultyresourcecenter.com/curriculum/pfv.aspx?ID=8433*
  - Windows Phone 7 Sensor Tutorials: (how to integrate phone sensors into games): *https://www.facultyresourcecenter.com/curriculum/pfv.aspx?ID=8632*
  - Windows Phone 7 Gaming Curriculum (16-hr materials on Intro to Game Development): *https://www.facultyresourcecenter.com/curriculum/pfv.aspx?ID=8869*
- "Transforming Computer Science in the Gaming Age," Case Study, Microsoft External Research, *http://research.microsoft.com/en-us/collaboration/papers/usc_uwb_rit.pdf*, August, 2008.
- "Game on: Professor brings Xbox 360 into the classroom," by Hannah Hickey, UWeek – The University of Washington faculty and staff newspaper, *http://uwnews.org/uweek/article.aspx?id=32871*, Vol. 24, No. 27, May, 2007.
- "UW Bothell professor uses Xbox to teach students," by Victoria Lee, The Daily News (University of Washington campus wide student daily newspaper),

http://www.thedaily.washington.edu/article/2007/5/22/uwBothellProfessorUsesXboxToTeachStudents,
May, 2007.

Released Games (+)*Graduate students* (*)*Undergraduate students*

- **"Ghostlight Manor,"** This is the commercial release of the **Ghost Light** prototype demo
  http://digitalfuturelab.com/ghostlight/. Please refer to the web-site for the complete list of credits.
    - STEAM: *https://store.steampowered.com/app/559250/Ghostlight_Manor/* Oct 2018.
    - AppStore: *https://itunes.apple.com/us/app/ghostlight-manor/id1047048495* Oct 2015.
    - GooglePlay: *https://play.google.com/store/apps/details?id=com.nybblestudios.GhostLight* Oct 2015.
- **"Ghost Light,"**, *http://depts.washington.edu/cmmr/GTCS*. Please refer to the web-site for the complete list of credits.
  October 2014.
- **"Conquer The Campus,"** *Producer*: Scott Berfield; *Developers*: Katerina Bodurova(*), Nathan Bowhay(*), Harrison
  Foro(*), Daniel Girodat(*), Jebediah Pavleas(*), Dmitry Ryzhkov(*); *Artists*: Jemely Jayme(*), Jeremy Jayme(*), Anthony
  Hopkins(*); March 2011. (*)*Undergraduate students*.
- **"Sammy's First Day on Campus,"** *Developers*: Ryan Hoaglan(*), Sidney Maxwell(*), Dmitry Ryzhkov(*), Kimberly
  Walker(*); *Artists*: Ryan Hoaglan(*), Kimberly Walker(*); September 2010, Android phone game, search for "UWB" on
  Android Market Place to download. YouTube: *http://www.youtube.com/watch?v=z2qrgo-ww8w* (*)*Undergraduate
  students*.
- **"Sammy Library Tour,"** *Developers*: Shane Krolikowski(*), Scott McPherson(*); *Artist*: Aaron Amlag(*); March 2010,
  Zune device game. Game available for checkout at UW1 receptionist desk. (*)*Undergraduate students*. YouTube:
  http://www.youtube.com/watch?v=ttNANa3SS-E
- **"Sammy Goes to UWB,"** *Developers*: Katherine Phillips(*), Bryan McMahon(*); *Artist*: Aaron Amlag(*); March 2010,
  http://depts.washington.edu/itls/CampusTour/. (*)*Undergraduate students*.

Courses Taught

- At CSS, UWB (1999-now): Courses Created
    - **CUSP 110**: Discovery Core I: Digital Thinking: Animation, Video Games, and The Social Web
        - Materials adopted and continued to be used by other faculty members
        - Course adopted by CUSP became BCUSP 161 and now adapted by CSS became CSS101.
    - **CSS 105**: Interdisciplinary Information Technology: Story telling via Computer Animation
    - **CSS 290/390**: Topics In Computing: User Interface Development on Mobile Devices
    - **CSS 295:** K12 Computing Education
    - **CSS 305**: Interdisciplinary Information Technology: Computer Animation
    - **CSS 330:** Topics in Mathematics for Software Development
        - Adopted from the book, "*Coding The Matrix*", focusing on implementing concepts.
    - **CSS 341**: Fundamentals of Programming Theory and Applications
        - Materials adopted and continued to be used by other faculty members
    - **CSS 385**: Introduction to Game Development
        - Materials adopted and continued to be used by other faculty members
    - **CSS 443**: Advanced Programming Methodologies
    - **CSS 450**: Introduction to Computer Graphics
    - **CSS 451**: 3D Computer Graphics
    - **CSS 452**: Introduction to 2D Game Engine Development
    - **CSS 551**: Advanced 3D Computer Graphics
    - **CSS 552**: Topics in Rendering
    - **CSS 545**: Mobile Application Development
        - Materials adopted and continued to be used by other faculty members
- At CSS, UWB (1999-now): Courses Taught
    - **CSS 332/CSSSKL 342:** Programming Issues with Object-Oriented Languages
    - **CSS 430**: Operating Systems
    - **CSS 501**: Data Structures and Object-oriented Programming 1
- At National University of Singapore *(1992 – 1995):* Computer Graphics: Topics in Rendering (Graduate level);
  Introduction to Computer Graphics (Final year); Computer Organization (Final year).

Graduate Student Supervisions

ΦCo-supervised with Professor James Fridley, School of Environmental and Forest Sciences, UW Seattle

Masters Thesis Supervised:
2021: Cho Chark Joe Leung – A User-Programmable System Agnostic Real-Time Ray-Tracing Framework

2020: Gregory Smith – Augmented Space Library 2: A Network Infrastructure for Collaborative Cross Reality Applications

2018: Jeremy Albert – Comparative Study of Virtual Reality Locomotion

2017: Koukeng Yang – Touching Augmented Reality: Direct Object Manipulation for Marker-less AR on Handheld Devices

Michael Tanaya – Object Manipulation with Tangible User Interface for Head Mounted Augmented Reality Devices

Masters Projects (Co-) Supervised:
2021: Jyn Lin – Context-aware Location-based Notification System Research

Chris Yuxuan Wu – Research into Pre-Rendering Technology for Supporting Modern Websites

2020: Adriana Padilla – Location-based word recommendation system, modeled as a Multi-Armed Bandit problem

Yangde LiΦ – An Architecture Evolution for Statistical Data Visualization Backend System

Yi ZhaoΦ – WYSIWYG Editor for College Affordability Model

Rishabh ChauhanΦ – Performance Enhancement for Statistical Visualization Web Frontend

Yingming Dang – Photorealisc and Toon Shading

2019: Kaihua Hu – Real-Time Ray Tracing with Unity3D

Simon ZhangΦ – A Web Framework for Interactive Data Visualization System

2018: Anjal Doshi – Learning Modern Computer Graphics Using Vulkan API

Joshua Lanman – Real-Time Volumetric Shader

Aaron Hitchcock – Cross Reality Views via an Unmanned Aerial Vehicle

Thomas BrownΦ – Suggestions for an Improved Approach to the Cross Reality Collaborative Framework

2017: Karan KarlaΦ – Re-Architecting College Affordability Model

Gayathri Palanisami –AGGLO: A Quantified Self Mobile Application

2016: Jebediah Pavleas – Improving eye-gaze wheelchair safety, usability and user experience

2015: Dexter Hu – GUI Architecture for the GTCS Game Engine

Jerry Chen – Instrumentation of Game-Themed API

Larisa Kocsis EnikoΦ – Exploring Multi-Tiered Web-based Visualization System

2014: Brian Chau – Educational Game Research and Development

2013: Anthony Nardozza – Interstellar Trader: A Massively Single Player Online Economic Game

Matthew Eason – Rendering Fully Mutable 3D Worlds based on Voxels

Lavinder Singh – Innovation Forum Interactive Map

Priyadharshini Asokan – Bill Sharing App for Windows Phone

Agranee Ray – Voyager: A Mobile Trip Planning System

2012: Ren Wu – Collaborative Filtering Based Recommendation System

Priyanka Patil – P2P on Mobile Devices for collaboration and social communication

Henry Tsai – Location recognition using a mobile phone camera

2011: Lewis Kostiew – Scene Reconstruction Using Multiple Kinects

Masters Thesis Committees Served:
2018: Albert Ng – Detection of Beta-Barrels from Medium Resolution Cryo-electron Microscopy Density Maps. Advisor: Dong Si

2017: Gautum Kumar– Limited Use Cryptographics Tokens in Securing Ephemeral Cloud Servers. Advisor: Brent Lagesse

2015: Jonathon Brammer – The Virtual Audio Screen. Advisor: William Erdly

2013: Allan Ortiz – Accelerating Chess game-tree search using GPGPUs. Advisor: Michael Stiber

Cherie Wasous – Distributed agent dissemination, migration, and termination in MASS Library. Advisor: Munehiro Fukuda

2012: Bhargav Mistry – Thread-based Dynamic Load Balancing in MASS, Advisor: Munehiro Fukuda.

Tosa Ojiru – Implementing MASS Library on GPUs, Advisor: Munehiro Fukuda.

Fumitaka Kawasaki – A Model of Dissociated Cortical Tissue, Advisor: Michael Stiber.

Timothy Chuang – Design and Qualitative/Quantitative Analysis of Multi-Agent Spatial Simulation Library, Advisor: Munehiro Fukuda.

Somu Jayabalan – Field-Based Process Dispatch and Migration, Advisor: Munehiro Fukuda.

Masters Capstone Committees Served:

2021: Corey Zhou – Collaborative Yet Decentralized: Applying Federated Learning to Artificial Intelligence to Protect User Privacy. Advisor: Afra Mashhadi.

Leung Tsan Ng – Evaluation of Euclidean Shortest Path, Voronoi Diagram and Line segment intersection using MASS, Spark and MapReduce. Advisor: Munehiro Fukuda

Jiashun Gou – Containerization Support for Multi-Agent Spatial Simulation. Advisor: Munehiro Fukuda

Zican Li – Network Motif Detection: Toward efficient and complete package. Advisor: Wooyoung Kim

Manjusha Kalidindi – Virtual reality-based tools for Vision Therapy (VT) for near-vision disorders. Advisor: William Erdly

2020: Pratik Goswami – Virtual Reality Based Vision Therapy for Motor Fusion. Advisor William Erdly

Nasser Alghamdi – Supporting Interactive Computing Features for MASS Library: Rollback and Monitoring System. Advisor: Munehiro Fukuda

Joseph Conquest – Software and Data Provenance as a Basis for e-Science Workflow. Advisor: Michael Stiber

2018: Andrew Watson – Improving Autonomy on the TrickFire Mining Robot. Advisor Erika Parsons

2017: Duncan MacMichael – Implementation of IPv6-Based Multi-Hop Communication for Bluetooth Low Energy Mesh Networks. Advisor: Yang Peng

Bhumikaben Patel – Implementing a Dynamic Index Structure for Multidimensional Spatial Data. Advisor: Min Chen

Nana Liu – Project Management System for PELDA. Advisor: Min Chen

2016: Fida AlSughayer – The Virtual Audio Screen. Advisor: David Socha

Hasit Mistry – SWIS: See What I Saw. Advisor: David Socha

PhD Thesis Committees Served:

2012: Keri Marino – Supporting the Evolution of Mathematics Teachers Practice with Technology: A Comparative Case Study of Teacher's Concerns, Advisor: Robin Angotti, Education Program

Graduate Independent Studies Supervised:

2021: Di Wang – GPU Cloth Simulation

Liwen Fan – Modeling and Rendering of Fluid

Andrew Nelson – Multi-Pass Rendering

Matthew Munson – Visualization Support of AR for Cross-Reality Collaboration

2020: Chris Wu – Analysis of Multi-Tier Architecture

Jyn Lin – Contextualizing Location Aware Information

2019: Yangde Li –Micro Services and Web Server Efficiency

Greg Smith –Brainstorming in Game Design

Adriana Padilla – Making Games Fun

Greg Smith – Augmented Space Library

Simon Zhang – Making Augmented Reality Movies

Joe Leung and Kaihua Hu – Real-Time GPU Ray Tracing

2017: Simon Zhang – Facial Reconstruction and AR

Jeremy Albert – Cross Reality Collaboration in Guided Mechanical Assembly

Thomas Brown –Texture Integration for Physical Space Mapping

2016: Mercy Ebenezer[Φ] – Web-based Visualization System

Koukeng Yang, Michael Tanaya, and Duncan MacMichael[Φ] – Augmented Reality Sandbox

Huaming Chen and Michael Tanaya – Rigid Body Dynamics in Game Engines
2015: Huaming Chen – Game Engine Scripting Architecture
2014: HongBin Li – Investigation of mobile access to web services
Jebediah Pavleas – 2D Special Effect Shaders
Stuart Drummond – Computer Graphics and Rapid Videogame Prototyping
2013: Garrick Solberg – Multitier Application Infrastructure
Lavinder Singh – Backend Architecture of a Multitier User Interactive System
Priyadharshini Asokan and Agranee Rays – Database Support for Social Sharing of Interactive Games
2012: Matthew Eason – 3D Application and Shader Programming in the Metro Environment
Namita Davis – Mobile Application Development
2011: Henry Tsai – Mobile Wayfinding Applications in Museums and Science Centers

Undergraduate Independent Student Research Projects Supervisions

Φ Co-supervised with Professor James Fridley, School of Environmental and Forest Sciences, UW Seattle

Independent Research Projects Supervised:
2021: Jacob Chesnut – Interactive Topographical Maps
Grace Nelson – A Scaled Adventure (AR + PC collaborative game)
Sergei Bakharev, Ivan Hristov, and Gabriela Lenkov – Armed Conquest (sci fi platform shooter)
Ayrton Muniz – Game Physics for Freight Hopper
Nina Panganiban – Level Editor for Freight Hopper
Scott Shirley, Jacob Chesnut, Nicholas Soerens, and Mingzhen Wang– Topography Map (network collaborative
        height map visualization system)
Nicholas Chambers, Sammy Lew, and Nathan Ngo – No Air Hockey (network VR game)
Joshua Sterner, Eunmin Lee, Kenneth Ven, and Cheuk-Hang Tse – Puzzle Speed Run (network collaborative
        puzzle game)
Kevin Blair, Connor Browne, Josh Max, and Alex Niu* – Tele-Meeting, a network tele-reality meeting system
        *Senior from Newport Highschool, Bellevue, WA.
Bill Long, Siddiqui Hamza, Maxwell Trinh, and Ryan Trung Le – Client-Server API for network games
Nina Panganiban, Ayrton Muniz, and Gabriel Oliver – Foundational API for gameplay developers
Sean Miles – Project Inkbrush (action-adventure with East Asian painting)
Eunmin Lee – Multi-tier full stack system investigation
2020: Daniel Smith – View Manipulation in Remote Virtual Presence (Spring 2020)
Sean Miles, and Marc Skaarup –Any Time Any Place Collaborative AR Pet Nurturing System (Spring 2020)
Bill Pham and Phuc Tran – Collaborative AR Exploration System (Spring 2020)
Yuto Akutsu, Isaiah Snow, and Cody Thayer – Collaborative VR Escaper The Room Game (Spring 2020)
Jonathan Cho and David Kim – Collaborative VR Exploration System (Spring 2020)
Daniel Smith – Image Based Rendering (Winter 2020)
Jacob Delzer –Structured Dissemination (Winter 2020)
Yuto Akutsu – Interactions in Virtual Spaces (Winter/Spring 2020)
2019: Donald Hawkins and Kyla Nesmith – GTCS Game Engine Refinement (Spring 2019)
Jacob Lafeat – Multi-person Collaborative AR (Spring/Fall 2019)
Saiful Nizam Salim – Multi-person AR Game (Spring 2019)
Samuel Krogh and Joel Maxwell – API for Detachable AR View (Spring 2019)
Christopher Kelley – Virtual Reality API for Middle-School Summer Camps (Winter 2019)
Andrew Wietecha – Virtual Reality form Third-Person Perspective (Winter 2019)
2018: Aaron Holloway – Remote Controllable Viewing position for VR (Fall 2018)
Stan Huber, Albert Kwong, Saam Amiri, Justin Baker, Benjamin Clark– Traveling between Augmented and
        Virtual Realities (Summer 2018)
Nicholas Carpenetti – Vulkan API Exploration (Summer 2018)
Naomi Fiebelkorn – Elements in Corporative Games (Spring 2018)
Dominic Espina – Teaching Java Summer Camp Instructors (Spring 2018)
Arrido Arfiadi –Instruction Materials for VR Summer Camp (Spring 2018)
Akilas Mebrahtom – GTCS Game Engine Refinement (Spring/Summer 2018)
Nicholas Carpenetti and Bobby Damore – Portal in A Cross Reality World (Winter 2018)

Tuofan Yuan – Dynamic Loading Support for Interactive Walkthrough (Winter 2018)

Sharanya Sudhakar – Animation Automation in VR World (Winter 2018)

2017: Kevin Fong – Evaluation of Content Management Systems (Fall 2017)

Trayce Luxtrum – Alignment of Scanned Physical Room Meshes. (Summer/Fall 2017)

Martin Metke – Network Resource Sharing for AR Support (Summer 2017)

Taran Christensen – Dynamic CRCF Signatures (Summer 2017)

Arrido Arfiadi, Taran Christensen, George Deguchi, Dominic Espina, John Karlo Garcia, Christopher Lynn, Thomas Oldham, Lei Sun, Doug Winegarden, Tyler Yamamoto, with students from School of Educational Studies [Andrew Berry, Claire Elliott, Riley Gaggero, and Nicholas Serpanos] – Teaching Java Programming to Middle School Students Using Video Games (Co-Supervise with Karen Gourd from Educational Studies and Ann McMahon from Office of Research, Spring 2017).

- *The results from this project included the curriculum for the Summer Camps with the Pacific Science Center.*

Miyu Mimura – Communicating Cross Reality Sandbox (Spring 2017)

Roman Krichilskiy and Trayce Luxtrum – Kinect Sensor Interface to Cross Reality Collaboration (Spring 2017)

Taran Christensen – Object Editor for Cross Reality Collaboration Sandbox (Winter 2017)

Shen Li, Darong Leng, and Miyu Mimura – Cloud Framework for Ultra Reality Space (Winter 2017)

- *This project was selected to compete in the US finals round of the Microsoft Imagine Cup 2017 competition (one of 12 teams from the entire US): https://www.youtube.com/watch?v=IIG0B8gI3Kc. From out of nearly 3000 students across the US. Other teams in the final include are from institutions including: Arizona State, Stanford, UCSD, MIT, UIUC, UC Berkeley, UCSB, Georgia Tech, and Princeton.*

Griffin Dziok – Android Interface to a Mixed-Reality Environment (Winter 2017)

Kulsoom Mansoor and Jessica Oriondo – Cloud Based Game-Themed Environment (Winter 2017)

Tom Graham –Server Support for Distributed Mixed-Reality Environment (Winter 2017)

2016: Vuochly Ky and Kunlakan Cherdchusilp – Game Development with Real Time Update (Fall 2016)

Michael O'Keefe and Shen Li – Software Architecture for Distributed Mixed-Reality (Fall 2016)

Skyler Kidd$^{\Phi}$ – Auto Test Suite for Interactive Web Frontend (Summer 2016).

Elliot White and Karen Schoen – Rapid Videogame Prototyping for Commercial Exploration (Summer 2016).

Jason Herold and Jonathan Earl – GUI frontend for GTCS Game Engine (Summer 2016).

Holden Woelfl and Vuochly Ky – Procedural API for DyeHard (Summer 2016).

Taran Christensen$^{\Phi}$ – Augmented Reality Sandbox (Summer 2016).

Christian Gebhart – Python Support for Game-Themed API (Spring 2016).

Tom Lai and Kunlakan Cherdchusilp – Functional API and Tutorial for the HTL Game (Spring 2016).

Norell Tagle$^{(\Phi)}$ – Test Suite and Auto-UI binding for Web Frontend (Spring 2016).

Vuochly Ky – Tutorials for SpaceSmasher Functional API (Spring 2016).

David Watson – Tutorials for GTCS Game Engine (Winter 2016).

Paul Kessler – Game Engine Website Development (Winter 2016).

Branden Drake – Finalizing Game API (continue from Fall 2015, Winter 2016).

Rachel Horton – Game-Themed Teaching Materials (Winter 2016).

Michael Voght – Understanding Commercial Game Release Process (Winter 2016).

2015: Brandan Hartel – GUI for GTCS Game Engine (Fall 2015).

Erick House – Documentation and Tutorials for GTCS Game Engine (Fall 2015).

Rachel Horton and Branden Drake – Custom Game API for Teaching Programming Concepts (Fall 2015).

Brandan Hartel – Commercialization of Corrupted (Summer 2015).

2014: Robert House – Deferred Rendering in Game Engines (Fall 2014).

Fernando Arnez – Physics and Effects for 2D Games (Summer 2014).

John Louie and Rodelle Ladia – Casual game for teaching objects (Summer 2014).

Samuel Hyungyu Kim – Casual game for teaching Arrays (Summer 2014).

Joseph Mixson – Commercialization of Ghostview (Summer 2014).

Michael Letter and Brian Hecox – Commercialization of academic games (Spring 2014).

Julia Yemelianov – Digital Asset Integration into Games (Spring 2014).

Paul Wisdom – Rapid prototyping of Anti-Bully Game (Spring 2014).

Matthew Kipps, Charles Chiou – Casual game for teaching objects (Spring 2014).

Mingnan Wu – Multi-Tier mobile app on iDevices (Spring 2014).

Chris Sullivan – Stress Testing Casual Games (Spring 2014).

Connor Blaser – Usability of Casual Game API (Spring 2014).

Ryan Bartlett – Infrastructure for Casual Games (Spring 2014).

Rodelle Ladia Jr. – Automatic Testing of Web Frontend (Winter 2014).

2013: Gregory White and Sean Guzzardo – Mobile framework exploration with Android SDK (Fall 2013).

Rodelle Ladia Jr. – Collaborated content sharing and evaluation system (Fall 2013).

Elliot Shanks – Open source game engine capabilities (Fall 2013).

Andrew Harvey – Competitive analysis of commercial grade game engines (Fall 2013).

Andrey Brushchenko – Social networking web support for academic (Summer 2013).

Michael Letter – Casual game for teaching 2D arrays (Summer 2013).

Fernando Arnez – Rapid casual game prototyping (Summer 2013).

Zulqurnain Hussain – Dynamic server side support for displaying of Java Applet Games (Summer 2013).

Abigail Carey and Fernando Arnez – Learning and evaluating game-themed library interface (Spring 2013).

Brain Hecox – Piecewise linear vs cubic spline support for continuous motion (Spring 2013).

Daniel Azus – Game engine and library for teaching intro programming (Winter 2013).

Dipen Patel – Fast Videogame Prototyping for teaching intro programming (Winter 2013).

2012: Andy Wun – RESTful services and clients (Fall 2012).

Dipen Patel, Benjamin Davis, Benjamin Lutz, Jordan Caroll – Mobile Game on Windows Phone (Fall 2012).

Jebediah Pavleas, Jack Chang, and Dipen Patel – Networked Tower Defense (Fall 2012).

Weston Winn and Jeremy Oakes – Games for Autistic Children (Summer/Fall 2012).

Oonagh Geldenhuys – Multi Tier Applications with PHP-based web services (Summer 2012).

Melanie Burnham – Mobile client and web database services (Summer 2012).

Jebediah Pavleas, and Jack Chang – Natural user interface and 3D game development (Spring 2012).

Long Dang – Videogame battle system for teaching programming concepts (Co-Supervise: Joe McCarthy, Winter 2012).

Jordan Locke, Kyle Zaretzke, Melanie Burnham – Economic asset visualization system for Pacific Northwest Economic Region (PNWER) (Winter 2012).

Evan Harris, Peter Thongprada Luangrath, Jonathan Lynn – Redici Receipt Management System (Co-Supervise with Barry Weisband from Business Development Center, Continuation from Fall 2011, Winter).

Owen Hart, Ilya Novichenko – Localfarm Web-site Development (Co-Supervise with Barry Weisband from Business Development Center, Continuation from Fall 2011, Winter).

2011: Jebediah Pavleas, and Jack Chang – Teaching K-12 math with Kinect (Co-Supervise with Robin Angotti from Education Program, Fall 2011 to Summer 2012):

- *This project won the 4th place in the Software Design Category of the 2012 Imagine Cup competition, and a winning selection for the "What Will you Create" Contest held by KinectEducation.com, and has won a $500 donation to UWB.*
- *Jebediah Pavleas has won the UW Bothell Undergraduate Research Founders Fellowship (January 2012) based on the work he did for this project.*
- *Short video demonstration of the project: http://www.youtube.com/watch?v=KVoRVIg7U40*
- *Project website: http://kinectmath.org*
- *Poster submitted to CCSC 2012.*

Evan Harris, Peter Thongprada, and Craig Nishina – Immune, a game for disease prevention (Fall 2011 to Spring 2012):

- *This project was a continuation of the students' final project from CSS385 and won the 3rd place in the XBOX Video Games Category of the 2012 ImagineCup competition.*
- *Short video demonstration of the project: http://www.youtube.com/watch?v=MiXkrjxK0r0*

Jack Chang, Long Dang, Howard Lee, and Jebediah Pavleas – Arcanians, a game about gravity (Fall):

- *This project was a continuation of the students' final project from CSS385 and a selection to the second round of the 2012 Imagine Cup competition.*
- *Short video demonstration of this project: http://www.youtube.com/watch?v=0mJQ-ICFbjY*

Evan Harris, Owen Hart, Jordan Locke, Peter Thongprada Luangrath, Jonathan Lynn, Craig Nishina, Ilya Novichenko, Kyle Zaretzke – Mobile Product Development (Co-Supervise with Barry Weisband from Business Development Center, Fall).

Ciao Tenca – HLSL with XNA (Summer).

Sean Keating – Interfacing Environmental Sensors to Mobile Devices (Summer).

Jack Chang, Long Dang, Howard Lee, Vince Ly, Antonio Martinez, Jebediah Pavleas, Stephen Jonany (CC Student) – DreamCoder: Adventure Game and Introductory Programming Classes (Co-Supervise with Jason Bay from Griptonite Games, Summer).

- *Short video demonstration of this project: http://www.youtube.com/watch?v=hUuLYvsU4sc*

Aran Shirdavani – Peer-to-Peer Apps on Mobile Devices (Spring).

Frank Ow – Cross platform and Web Services with SilverLight (Spring).

Shane Krolikowski -- Web Services and Clients on Mobile Devices (Spring).

Nick Huebner – 3D Scene Re-Construction with Kinect (Winter).

Aran Shirdavani – Fractal Geometry (Winter)

Katerina Bodurova, Nathan Bowhay Harrison Foro, Daniel Girodat, Jebediah Pavleas, Dmitry Ryzhkov, Jemely Jayme, Jeremy Jayme, Anthony Hopkins – Gameplay of Serious Games (Co-Supervise with Scott Berfield from Center for Serious Play, Winter).

2010: John Therrell – Web services and Mobile Devices (Fall).

Ryan Hoaglan – Gaming with Sensors on Mobile Devices (Summer).

Kimberly Walker – Java/OGL platform for Game-Themed application development (Summer).

Sean Keating – Automation and GUI Interface support for TI Calculator data transfer.

Daniel Girodat, Andrew Ogier, Charlie Skinner, Nathaniel Williams – Understanding 3D Game Engine via Game Development (Summer).

Ryan Hoaglan, Sidney Maxwell, Dmitry Ryzhkov, Kimberly Walker – Serious Game on Mobile Devices (Summer)

- *Short video demonstration of this project:* *http://www.youtu.be/z2grqo-ww8w*

Tom Baron – Automatic Sprite Animation Generation from Photographs (Spring, Summer).

Katherine Phillips, Shane Krolikowski – OpenGL ES 2.0 Shader Library and Mobile Devices (Spring).

Aaron Amlag, Shane Krolikowski, Bryan McMahon, Scott McPherson, Katherine Phillips – The Game Across Multiple Environment (GAME) Project: A Game for UWB Admissions Office (Winter).

- *Short video demonstration of this project:* *http://youtu.be/ttNANa3SS-E*

2009: Conrad Young – Physics based games and gameplay (Fall).

Matthew Kaplan, Filiz Kurban, Soufi Souaiaia, Conrad Young, Darrell Westerinen, – Game for Autistic Children (Spring).

Jeffery Hutchins – 2D Games Engine based on XNA Framework (Spring).

Clifton Dobrich – 3D Animation via Maya API (Winter).

Jae Joong Kim – Interactive Game Design with Eye Tracking Device (Winter).

2008: Christopher Ross – Java language binding for UWBGL (Fall).

Neil Erdman – Integration of XNA Framework lighting effects into UWBGL (Summer).

Howard Yuen – Building GUI based interactive applications on the Xbox 360 console (Winter).

Glenn Plant – Gesture Based User Interaction (Winter).

Ryan McMillan – Infrared Cameras in Graphics Applications (Winter).

2007: Matthew Allen – Semi-Automatic Color Reduction Tools for Artists (Fall).

Robert Stone – Porting UWB_GL to XNA framework (Summer, Fall).

Peter Yiap – GUI Menu System for NXA on the Xbox 360 platform (Summer, Fall).

Elvir Bahtijarafic – Viewport and Camera wrappers for XNA (Spring).

2006: William Frankhouser – User Manual for UWB GL (Winter).

2005: Jordan Philips– Interactive Slicing of Mesh Objects (Spring).

Andrew Belousek – API Analysis of Massively Multiplayer Online Role Playing Game (Winter).

Philips Jordan – Designing/Developing API independent 3D Graphics Library (Winter).

Kevin Gott – Adapting First Person Role Playing Game Engine for General Game Genres (Winter).

2004: Sean Brogan – Multi-Tier web-application development (Fall).

Chris Traina – DirectShow and Multimedia (Summer).

James Howbert –Visualization of Molecular Structures with Maya API (Summer).

Christopher D'Annunzio – Games Engine Analysis and Development (Spring).

Jack Nichols – Interactive Slicing of Arbitrary Mesh Objects (Spring).

Adam Smith – Design of Graphics Library Interactive Applications (Spring).

Wilson Kam –Application Automation with Scripting Languages (Winter).

2003: Peter Christensen - Real-time hardware assisted soft-shadow generation (Summer 2003 – Fall 2004).

Kyoko Nakahashi – Virtual driving in the real world (Fall).

Charles Watson –Performance Monitoring in CORBA Application Architecture (Summer).

Aida Sakkal – Interactive Audio for Games Development (Summer). *The poster describing this work won the 1st price at the CCSC-NW 2003 Annual Conference Student poster competition.*

Lawrence Sanchez – Virtual Surgeon on Tablet PC (Summer).

Igor Bodi – Java Based Network Chess Game Development (Spring).

John Young – Resource Management Support for Games Development (Spring).

Eric Byrd – API Support for Network Games Development (Spring).

John Carlson – Game development for GameBoy platform (Winter).

Ian Chan –Maya based human modeling (Winter 2003).

Axel Koch – Game pad controller user interface for 3D interactive walkthrough (Winter 2003).

2002: Saikat Kanjilal – Image processing with Intel WebCam (Fall).

Jason Pursell – OpenGL development with C# (Summer).

Kazuko Hass – Simulating Group and Crowd Behavior with Maya (Spring).

Chris Veal – Java toolkit for 3D interactive walkthrough (Winter).

Brain Warren – Joystick user interface for 3D interactive walkthrough (Winter).

2001: Daniel MacDonald –3D modeling and rendering systems development (Spring /Summer).

Tung Tran – Distributed system development based on Java RMI (Winter 2001 – Winter 2002).

Michael Mager – Distributed system development based on CORBA (Fall 2000 – Spring 2001).

Steve Baer – Instrumentation for distributed system performance (Spring 2001 – Fall 2002).

Derek Gerstmann – Navigation in video system project (Spring 2001).

Jennifer Beers – High Quality Image Generation (Summer 2001).

Paul Volosen – Working with Media in the Microsoft Windows Environment (Spring 2001).

Gabriel Holmes – User interface Support for 3D navigation system (Summer 2001).

2000: Calvin Atkin – User interface support for 3D navigation system (Fall 2000 – Spring 2001).

Morgan Eason – 3D modeling based on Maya unlimited (Fall 2000).

CSS Undergraduate Capstone Projects Supervised:

2021: Sergei Bakharev (Independent Project, Summer), Ivan Hristov (Independent Project, Summer), Gabriela Lenkov (Independent Project, Summer), Grace Nelson (CRCS UWB, Summer), Noah Reiniger (Pandora, Summer), Nina Panganiban (Independent Project, Summer), Ayrton Muniz (Independent Project, Summer), Leonardo Mota-Villaraldo (Google, Summer/Autumn), Nicholas Soerens (CRCS UWB, Spring), Mingzhen Wang (CRCS UWB, Spring), Nicholas Chambers (CRCS UWB, Spring), Sammy Lew (CRCS UWB, Spring), Nathan Ngo (CRCS UWB, Spring), Kenneth Ven (CRCS UWB, Spring), Cheuk-Hang Tse (CRCS UWB, Spring), Kevin Blair (CRCS UWB, Spring), Connor Browne (CRCS UWB, Spring), Josh Max (CRCS UWB, Spring), Bill Long (Independent Project, Spring), Siddiqui Hamza (Independent Project, Spring), Sean Miles (Independent Project, Spring).

2020: Yuto Akutsu (CRCS UWB, Winter/Spring), Daniel Smith (CRCS UWB, Spring), David Kim (Amazon, Summer), Isaiah Snow (CRCS UWB, Summer), Kellan Blake (CRCS UWB, Summer), Matthew Munson (CRCS UWB, Summer), Camden Brewster (CRCS UWB, Summer), Ihsan Halimun (CRCS UWB, Summer), Jake Stewart (CRCS UWB, Summer), Jun Zhen (CRCS UWB, Summer), Chandler Mendoza-Eastman (T-Mobile, Summer)

2019: Jacob Lafeat (CRCS UWB, Fall), Kyla Linda NeSmith (Hardsuit Labs, Fall), Emily Krasser (Unity, Summer), Brar Sahjpreet (Saykara, Summer), Donald Hawkins (T-Mobile, Summer), Samuel Krogh (Tethers Unlimited, Summer), Joel Maxwell (FujiFilm SonoSite, Summer), Aaron Holloway (Kombi, Spring/Summer), Saiful Nizam Salim (CRCS UWB, Spring), Stephen Barkas (PeopleTech Group, Spring), Andrew Wietecha (CRCS UWB, Winter/Spring/Summer), Christopher Kelley (GTCS UWB, Winter/Spring), Naomi Fiebelkorn (DFL UWB, Winter/Spring), Sharanya Sudhakar (DFL, UWB, Winter/Spring).

2018: Stanley Mugo (Green Guide, Fall), Pavel Samsonov (M-87, Fall), Tyler Yamamoto (Math UWB, Summer), Akilas Mebrahtom (GTCS UWB, Summer), Stan Huber (CRCS UWB, Summer), Albert Kwong (CRCS UWB, Summer), Saam Amiri (CRCS UWB, Summer), Justin Baker (CRCS UWB, Summer), Smriti Dahal (DFL UWB, Summer), Hossam Basiony (DFL UWB, Summer/Fall), Caleb Moore (DFL UWB, Summer/Fall), Nicholas Carpenetti (CRCS UWB, Summer), Alexander Carswell (PNNL, Summer), John Karlo Garcia (T-Mobile, Spring/Summer/Fall), Tuofan Yuan (CRCS UWB, Spring), John Garcia (T-Mobile, Spring), Susanna Byun (Synect Media, Spring).

2017: Taylor Baldwin (DFL UWB, Fall/Winter), Samuel Meyerding (DFL UWB, Fall/Winter), Tavi Tenari (DFL UWB, Fall/Winter), Ryan Vichitthavong (DFL UWB, Summer), Zach Selin (Amazon, Summer), Robert Damore

(Microsoft, Summer), Michael Ritchie (DCI, Summer), Trayce Luxtrum (CRCS UWB, Summer), Deanna Rustham (DFL UWB, Summer), Jayse Farrell (FujiFlim SonoSite, Summer), Damian Banki (Google, Summer), Taran Christensen (CRCS UWB, Summer), Darong Leng (Concur Technologies, Summer), Steven Roberts (DFL UWB, Spring/Summer), Griffin Dziok (CRCS UWB, Winter), Robert Griswold (DFL UWB, Winter), James Becker (DFL UWB, Winter), Darren Kriner (DFL UWB, Winter), Kulsoom Mansoor (GTCS UWB, Winter), Jessica Oriondo (GTCS UWB, Winter), Roman Krichilskiy (DFL, UWB, Winter/Spring), Tom Graham (CRCS UWB, Winter), Spencer Milner (Concur Technologies, Winter).

2016: Shen Li (CRCS UWB, Fall), Vuochly Ky (GTCS UWB, Fall), Michelle Jin (The Next Phase Inc, Fall), Karen Schoen (DFL UWB, Fall), Jonathan Earl (GTCS UWB, Summer), Jason Herold (GTCS UWB, Summer), Frank Kidd (CSS UWB, Summer), Holden Woelfl (CSS UWB, Summer), Kevin Kang (with D. Socha, CSS UWB, Summer), Jongwook Kim (CDS Inc., Spring), Norell Tagle (UWB, Spring), Chad Dugie (DFL UWB, Winter), Matthew Lindquist (Microsoft, Winter), Bartosz Dabkowski (LMC Consulting Group, Winter), Joscelyn Kim (DFL UWB, Winter).

2015: Dawn Basmani (T-Mobile, Fall), Theodore Vance Roley (DFL UWB, Summer), Terry Rogers (Tyemill, Summer), Rachel Horton (DFL UWB, Summer), Brandan Drake (DFL UWB, Summer), Michael Voght (DFL UWB, Summer), Selam Yihun (DFL UWB, Winter), Anna Piechowski (DFL UWB, Winter/Spring), Adam Burkhalter (DFL UWB, Winter/Spring), Austin Soriano (DFL UWB, Winter/Spring).

2014: Melissa Kjelgaard (DFL UWB, Fall), Gary Mixson (DFL UWB, Fall), Rodelle Ladia (DFL, UWB, Summer), Joseph Hoff (DFL, UWB, Summer), Chuan Wang (DFL, UWB, Summer), Brandon Roth (Boeing, Summer), Fernando Arnez (DFL UWB, Summer), Micah Lee (DFL UWB, Summer), Michael Hsieh (DFL UWB, Summer), Joseph Schooley (F5 Networks, Spring), Teresia Djunaedi (Honeywell, Summer), Ryan Druckman (with D. Socha, DFL UWB, Spring), Matthew Laine (With C. Olson, DFL UWB, Spring), Jonathan Mason (with H. Asuncion, CSS UWB, Spring), Mingnan Wu (CSS UWB, Spring), Chris Sullivan (DFL UWB, Spring), Dimitar Dimitrov (SpaceLabs Healthcare, Spring), Paul Wisdom (FlyBuy, Spring).

2013: Brian Hecox (Digital Future Lab UWB, Fall/Winter), Ryan Bartlett (Digital Future Lab UWB, Summer/Fall), Maurice Aubrey (CSS UWB, Fall), Matthew Parker (Bitco Software, Summer), Andrew Harvey (Boeing, Summer/Fall), Noel Diep (Philips, Summer), Kevin Call (Camouflaj, Summer), Michael Letter (Digital Future Lab UWB, Summer), Andrey Brushchenko (Digital Future Lab UWB, Summer), Michael Waite (Cascadia Community College, Summer), Jacob Leach (CSS UWB, Spring), Shane Honanie (Elliott Bay Design Group, Spring), Daniel Azus (Digital Future Lab UWB, Winter/Spring)

2012: Jebediah Pavleas (CSS UWB, Fall), Peter Wu Shifan (Concur Technology, Fall), Andy Wun (Microsoft, Fall), Benjamin Davis (F5 Netowkrs, Summer), Evan Harris (Vertafore Inc, Summer), Oonagh Geldenhuys (John L. Scott, Summer), Lina Phan (Omni212, Spring/Summer), Betania Gebremariam (Philips, Spring), Owen Hart (CSS UWB, Fall 2011/Winter 2012), Jordan Locke (PNWER, Fall 2011/Winter 2012), Jonathan Lynn (CSS UWB, Fall 2011/Winter 2012), Ilya Novichenko (CSS UWB, Fall 2011/Winter 2012), Kyle Zaretzke (PNWER, Fall 2011/Winter 2012), Don Wise (with M. Stiber, CSS UWB, Winter), Dipen Patel (with M. Stiber, CSS UWB, Winter).

2011: Garet Anderson (Microsoft, Fall), James McShane (Cascadia Community College, Summer), Daniel Girodat (CSS UWB, Summer) Christopher Calland (Crane Aerospace, Summer), Jashan Dhaliwal (Cequint, Summer), Michael Hermes (High 5 Software, Summer), Long Dang (CSS UWB, Summer), Antonio Martinez (CSS UWB, Summer), Vince Ly (CSS UWB, Summer), Jack Chang (CSS UWB, Summer), Howard Lee (CSS UWB, Summer), Sydney Maxwell (Oltis Software LLC, Summer), Caio Tenca (Google, Summer), Douglas Taylor (Microsoft, Summer), Kimberly Walker (CSS UWB, Spring), Joshua Belcourt (Mindbloom, Spring), Ryan Hoaglan (Bigfish, Spring), Frank Ow (CSS UWB, Spring), Scott McPherson (Wavelink, Winter), Charles Skinner (Pandamonium Games, Winter), Katerina Bodurova (CSS UWB, Winter), Harrison Foro (CSS UWB, Winter).

2010: Boua Lor (Pandamonium Games, Fall), Shane Krolikowski (Pandamonium Games, Fall), John Therrell (Apple, Summer/Fall), Bryan McMahon (Griptonite Games, Summer), Jesse Bergslien (Vertafore Inc, Summer), Katherine Kuttler (Griptonite Games, Summer), Samuel Cook (HP, Summer), Ronald Cook (Predictive Solutions, Summer), Sam Frazier (Zetec Inc, Spring/Summer), Thomas Baron (CSS UWB, Summer), Joseph Chouinard (Zombie Studios, Summer), Jayson Kostelyk (with P. Littig, S&T/CSS UWB, Spring/Summer), Joshua Bell (Halycon Games, Spring/Summer), Soufi Souaiaia (with P. Littig, S&T/CSS UWB, Spring), Ethan Crawford (with M. Stiber, CSS UWB, Spring), Sean McCallum (with M. Stiber, CSS UWB, Spring), Mikhail Elbert (Engineering Simulation and Animation Lab, Winter), Nathan Bowhay (Engineering Simulation and Animation Lab, Winter), Aaron Amlag (CSS, UWB, Winter).

2009: Conrad Young (CSS, UWB, Fall), Thomas McShane (Vertafore Inc, Summer), Young Wouk Youn (University of Washington Autism Center, Spring), Jeffery Hutchins (CSS UWB, Spring), James McCool (Durham Geo Slope Indicator, Spring), Christopher Eng (FuelCell Games, Spring), Jae Joong Kim (University of Washington Autism Center, Winter).

2008: Neil Erdman (Robert McNeel & Associate, Fall), John Ellenberger (Expedia, Summer), Peter Ung (Boeing, Summer), Jin Jun (GalleryPlayer Inc, Spring), Ryan McMillan (HandheldGames, Spring), Brent Nakamoto (HandheldGames, Winter).

2007: Matthew Allen (CSS, UWB, Fall), Robert Stone (Amaze Entertainment, Fall), Peter Yiap (Big Fish Games, Fall), Ethan Verrall (Digini Inc, Summer) Alex Badion (RealNetwork Inc, Summer), Brain Kohlwaies (Illumigen Biosciences Inc., Winter/Spring), Elvir Bahtijaragic (RealNetwork Inc., Spring), Nathan Schelin (Planet Technologies, Spring).

2006: Alex Yatskov (Griptonite, Winter)

2005: James Gray (Children's Hospital and Regional Medical Center, Seattle, Spring), Brad Hallisey (Griptonite, Spring), Tyler Marlatt (Resolute Inc., Spring), Jordan Phillips (CSS, UWB, Spring).

2004: Kevin Gott (CSS, UWB, Fall), Gordon Watanabe (Microsoft, Fall), Lewis Kostiew (CSS, UWB, Fall), Christopher D'Annunzio (Microsoft, Summer), Adam Smith (HandheldGames, Spring), Jack Nichols (Hunt Interactive Inc., Spring), Mark Pottorf (CrankyPants Games, Winter), Wilson Kam (CSS, UWB, Winter).

2003: Jason Pursell (Magtronic Inc, Winter), Ian Chen (CSS, UWB, Spring), Aida Sakkal (CSS, UWB, Summer), Lawrence Sanchez (CSS, UWB, Summer), Dan Weber (Green Button Technologies Inc., Summer), Terasak Roeksbutr (HIT Lab, UWS, Summer), Benjamin Steenbock (CSS, UWB, Fall), John Carlson (HandheldGames, Fall), Jin Park (HIT Lab, UWS, Fall).

2002: Derek Gerstmann (Industrial Light and Magic, Spring), Morgan Eason (Rainfalls Studios, Summer), Daniel MacDonald (Rainfalls Studios, Summer), Kyoko Nakahashi (Core Mobility, Summer), Christopher Veal (AT&T Wireless, Summer), Gabriel Holmes (Electronic Arts, Summer), Steve Baer (Adrenium [Amaze Entertainment], Summer), Kazuko Hass (Escape Factory, Summer).

2001: Holmes Ge (InfoCom, Summer), Jared Merkley (United Parcel Services, Summer), Jonathan Eytinge (CSS, UWB, Fall).

2000: Revin Guillen (Agilent Technologies Inc., Summer), Brady Houck (Humongous Entertainment, Fall).

University of Washington-wide Committees

- Appointed Member (by UWB Chancellor), University of Washington Academic Technology Advisory Committee (2003-2005, 2006-2008).
- Member, UWB Chancellor Search Committee (2000, 2006, 2012).
- Member, UWB Chancellor Review Committee (2005, 2012).
- UWB, CSS Coordinator, UW Combined Fund Drive (2001-2002).

University of Washington, Bothell (UWB) Campus-wide Committees

- STEM Representative on the UWB Community Engagement Council (2015).
- Co-Chair, UWB Director of Quantitative Skills Center Search Committee (2009).
- Co-Chair, UWB Director of Teaching and Learning Center Search Committee (2009).
- Member, UWB Undergraduate Honor's Track Task Force (2012).
- Member, UWB Lab Oversight Committee (2012).
- Member, UWB Director of Quantitative Skills Center Search Committee (2010).
- Member, UWB Education Program Promotion and Tenure Committee (2010).
- Member, UWB Interactive Media Technology Degree Task Force (2009-2010).
- Member, UWB Electrical Engineering Faculty Search Committee (2009, 2011).
- Member, UWB Digital Entertainment & Interactive Media Degree Exploration Committee (2008-2009).
- Member, UWB Electrical Engineering Degree Committee (2008).
- Member, UWB Director of Information Systems Search Committee (2007).
- Member, UWB Technology Policy Advisory Group (2003-2005).
- Member, Worthington Scholar Award Selection Committee, UW Bothell (2003).

- Member, Advisory Board, UW Bothell Teaching and Learning Center (2002-2005).
- Member, CSS Director Search Committee (2002-2004).
- Member, UWB Vice-Chancellor Search Committee (2000, 2003).
- Member, Planning and Search Committee for Quantitative Skills Center (2000).

UWB General Faculty Organization (GFO) Committees
- Elected to UWB GFO Campus Council on Promotion, Tenure and Faculty Affairs (2009-2011, 2015-2017).
  - Elected Chair 2015-2016.
- Member, UWB GFO Faculty Oversight Committee for University Studies (FOCUS) (2012-2014).
- Co-Chair, UWB GFO Instructional and Research Support Committee (2008-2010).
- Elected to UWB GFO Executive Council (1999-2002, 2008-2010).
- Elected to UWB GFO Faculty Council on Tenure and Promotion (1999, 2002-2005).
- Member, UWB GFO Student Relations Committee (2006).
- Member, UWB GFO Faculty Affairs Committee (2002).

STEM School Committees
- Appointed, Standing Committee, Biological Sciences Division, School of STEM (2010-2020).
- Appointed, Assistant Professor Review Committee, Biological Sciences Division, School of STEM (2019, 2020).
- Appointed, Standing Committee, Engineering and Mathematics Division, School of STEM (2016).
- Member STEM Graduate Programs, CSS Graduate Advisor Search Committee (2017)
- Member, Third-year Review Committee, Engineering and Mathematics Division, School of STEM (2017).
- Appointed, Standing Committee, Computing and Software Systems Division, School of STEM (2013, 2015, 2018).
- Appointed, Standing Committee, Physical Sciences Division, School of STEM (2013, 2015).
- Appointed Member, Junior and Senior Personnel Committees, Engineering and Mathematics Division (2014).
- Appointed Member, Junior Personnel Committee, Physical Sciences (2014).
- Member, Assistant Professor Third-year Review/Reappointment Committee (2013).

Computing and Software Systems (CSS) Committees
- Curriculum:
  - Graduate Curriculum Committee
    - Chair: 2011-2013
    - Member: 2010-2011, 2013, 2016-2021
  - Interactive Media Design, Academic Oversight Curriculum
    - 2016-2017
  - Undergraduate Curriculum Committee
    - Chair: 2004, 2006-2008, 2010-2011
    - Member: 2003, 2009
  - Master Program Committee:
    - Member: 2000-2002
  - Ad. Hoc. Committee on Master Degree Planning
    - Chair: 1999
  - CSS342/343, topic coverage re-alignment. Fall 2018
- Admissions:
  - Graduate Admissions Committee:
    - Chair: 2011-2013, 2015-2018
    - Member: 2010-2011, 2013-2014, 2018-2021
  - Undergraduate Admissions Committee:
    - Chair: 2008-2010, 2013-2014
    - Member: 2010-2011
- Faculty Affairs:
  - Senior Personnel Review Committee
    - Elected Chair: 2009, 2012, 2013, 2016
    - Elected Member: 2011, 2014, 2016-2021

- o Junior Personnel Review Committee
    - Elected Chair: 2009-2010, 2013
    - Elected Member: 2008, 2011, 2012, 2014, 2016-2019
    - Appointed Chair: 2002-2005
    - Appointed Member: 2000-2001, 2006
- o Assistant Professor Review/Contract Renewal Committee
    - Chair: 2012, 2017
    - Member: 2013, 2016-2019
- o Faculty Search Committee
    - Chair: 2000, 2001, 2012, 2015
    - Member: 1999, 2009, 2010
- o Part-Time Faculty Search Committee
    - Member: 2015-2016
- o Part-Time Faculty Review Committee
    - Member: 2021
- o Research Faculty Search Committee
    - Chair: 2012
- o Promotion and Tenure Committee:
    - Chair: 2000, 2013, 2017, 2020
    - Member: 2006, 2013, 2016, 2017, 2019 (x6), 2020 (x2)
- o Junior Faculty Mentoring: 2014—Now
- Others:
    - o Elected to CSS RA-Award Review Committee: 2016, 2017, 2021
    - o Chair, TA Selection Committee: 2017
    - o Public Outreach and Collaboration:
        - Chair: 2015-2016
        - Member: 2016-2021
    - o Outreach in search of community partners to support CSS295: including contacts and/or site visits to iUrbanTeen Seattle; Jane Addams Middle School; Cleveland High School; Seattle YMCA; UW Professional & Continuing Education, Pacific Science Center; Lake City Court Housing Project after School Program; Sand Point Elementary School, Kids U Program; 2015-2016.
    - o Infrastructure Committee
        - Chair: 2009-2013
        - Member: 2002, 2003, 2008-2009, 2013-2014
    - o Strategic Initiatives Committee: External Curriculum
        - External Curriculum Chair: 2008-2009
        - Member: 2004, 2006-2008
    - o Academic Appeals Committee
        - Member: 2007, 2008.

General Campus Services

- Invited Reviewer, Mary Gates Research Scholarship, University of Washington, Winter 2021, Winter 2019, Winter/Spring/Fall 2016, Spring/Fall 2015, Spring/Fall 2014.
- Volunteer Faculty Presenter, "*You, and Computer Science at UWB*", UWB Admitted Student Day, April 1, 2017; March 10, and 17, 2018, March 9, April 6, 2019, March 7, 2020 (*Cancelled due to the COVID-19 pandemic*).
- Invited Panelist, *Faculty Panel*, UWB College Preview Day, August 31, 2017, August 22, 2019.
- Invited Faculty Speaker, "*About CSS and Why You May Want to Join US*", UWB Pathway for Pre-Majors, Jan 28, 2019.
- Faculty Speaker, "*Computer Science @ UWB: Success Through Rigor and Fun*", UWB STEM Day, February 24 2018.
- Faculty Speaker, *CSS New Student Orientation*, Fall 2013—2017 (up to 2-3 sessions each academic quarter).
- Invited Faculty Speaker, *Computer Science Information Session*, Edmunds Community College, representing UWB/CSS speaking to potential transfer students, Fall 2013, Winter/Spring/Fall 2014, Winter/Spring 2016, Spring 2017.

- Volunteer Faculty Presenter, "*You, Computer Science, and Why at UWB*", UWB College Preview Day, October 29, and December 10, 2016.
- Invited Faculty Panelist, *Learn about College CS Programs*, at the *Technology Education and Literacy in Schools (TEALS) Puget Sound Student Field Trip To Microsoft*, representing UWB spoke to hundreds of regional high school students about UWB CS programs, April 2016.
  - April 2016: https://www.tealsk12.org/events/y2016/fieldtrip/redmond/
  - April 2014: http://www.tealsk12.org/events/y2014/fieldtrip/redmond/program/
- Supported CSS Student Rachel Horton (with Michael Stiber) in her workshops on learning programming by building videogames for iUrbanTeen visit to campus, October 2015.
- Invited Faculty Speaker, *South Seattle Community College visit to UWB*, June 2015.
- Organized two workshops on learning programming by building videogames, In support of UWB College Awareness Day Diversity Effort, May 2015.
- Workshop assistant, *Sally Ride Science Festival*, Fall 2014.
- Invited Faculty Speaker, *CSS Admitted Student Day*, representing CSS spoke to direct admitted freshmen CSS students and their parents, April 2014.
- Invited Faculty Panelist, "*Balancing Teaching and Research*," UWB New Faculty Orientation, September 2013.
- Participated in and contributed to the UWB campus-wide discussion on Honors Program, UW Bothell, May 2011, March 2012.
- Invited Panelist, "*Thinking Ahead About Graduate School*," Career Services, UW Bothell, May, 2011.
- Invited Panelist, "*Working with Undergraduate Research Students*," UW Bothell/Tacoma New Faculty Research Boot Camp, September, 2010.
- Invited Panelist, "*Reflections on Being an F-1 Student*," Association of Washington International Student Affairs (AWISA) meeting, February, 2010.
- Invited Faculty Panelist, UW Bothell Admissions Office Orientation for International Students, January, 2010.
- Participated in UW Bothell Neighborhood Open House, October 2009.
- Participated in and contributed to the content of the UWB Viewbook and Virtual Tour project (2008).
- Invited Speaker, UWB College Awareness Day, 2008.
- Invited Speaker, UWB Freshmen Fair, 2006, 2007, 2008.
- Faculty Advisor, UWB Student Technology Fee Fund Committee (2005).
- "Research and Teaching at the Computing and Software Systems Program, University of Washington, Bothell," Invited talk, Business Information Technology Program, Cascadia Community College, March 2003.

Committee Membership Prior to UWB
- Organizing Chair, Rendering Summit II, Research and Development Division, Alias|Wavefront, Toronto Canada, May 1999.
- *Committee members while at National University of Singapore (1992-1995):* Elected junior faculty representative to the department executive committee; member of curriculum planning and, new building planning committees.

Presentations and Public lectures
- Presented papers/panels/workshops at: CCSC-NW 2016, 2014, 2012, 2008, 2007, 2004; SIGCSE 2016, 2011-2006; FDG 2015; ITiCSE 2014; IEEE SEE&T SMACK Workshop 2011; CPATH ETSU Workshop 2010; CPATH GECS Workshop 2010; PAX 2009; GDCSE 2008; FIE Conference 2005; SIGGRAPH Educator's Program 2003; Pacific Graphics 1998; Graphics Interface 1995, 1991; Eurographics Rendering Workshop 1992; Eurographics 1992, 1991.
- "Who I am and What I do: Why you might care?" Invited presentation as an outstanding Alumni, Nan Hua Primary School (新加坡南华小学), Singapore, July 2008.
- "Technical Details of the Maya Renderer," Invited Talk, Alias|Wavefront Users' Group Meeting, Bellevue, Washington, September 2002.
- Presentations on the technical details of the Maya Renderer to Alias|Wavefront customers at customer sites, 1998.
- Other Invited Talks: Stanford University; IBM T.J. Watson Research Center; Indiana University at Bloomington; Simon Fraser University; Academia Sinica, Taiwan; The Chinese University of Hong Kong; National University of Singapore; Alias|Wavefront, Toronto; Square Soft, Hawaii;

Reviewer for
- National Science Foundation proposal review panels: 2013, 2012, 2007, and 2005 for programs including: ATE, CCLI, TUES, S-STEM.
- National Sciences and Engineering Research Council of Canada (2018, 2013, 2009); National Research Foundation, Singapore (2007); Canada Foundation for Innovation (2003), Hong Kong Research Council (1996-2000).
- External Examiner for MS and PhD Candidates, School of Computing, National University of Singapore.
- External Reviewer for Promotion and Tenure Cases (Faculty members from Computer Science and Interactive Multimedia Programs) Institutions within the US, 2010, 2008.
- Professional Journals and Conferences: IEEE Transactions on Education; Computers & Graphics; Eurographics Education Program; Eurographics State-of-the-Art Reports (STAR) Programme; Communications of the ACM; International Journal of Image and Graphics (IGIJ); ACM SIGGRAPH Asia; ACM SIGGRAPH Conference; Graphics Interface; EUROGRAPHICS; IEEE Computer Graphics & Applications; Visual Computer; IEEE Software; A.K. Peters Publishing, Prentice Hall Publishing; CG Educational Materials Source (CGEMS); CCSC-NW Conference; International Conference on the Foundations of Digital Games (FDG); Public Library of Science (PLOS); SIBGRAPI.

Other Professional Activities
- Member, Technical Advisory Committee, Cascadia College, 2017-2021.
- The Consortium for Computing Sciences in Colleges, services
  - Conference Chair, 2018
  - Member, Conference Steering Committee, Panels and Tutorials Chair, 2016
  - Member, Conference Steering Committee, Speakers Chair, 2015
  - Paper Session Chair, 2015
- Program Committee, Game Technology Track, Foundations of Digital Games Conference 2017.
- External Reviewer, Proposal for Bachelors of Applied Science IT Degree in Application Development, Cascadia College, February 2017.
- IEEE Computer, services (https://www.youtube.com/watch?v=j-uMKekzg8Q)
  - Column Editor, Entertainment Computing, IEEE Computer (Jan 2011 – Dec 2014):
  - Guest Editor, Computing Now, IEEE on-line magazine (July 2012).
  - Guest Editor (one of three), IEEE Computer Theme Issue on Computing in Asia (June 2012).
- Academic Leadership Trainings:
  - CRA Conference at Snowbird, July 2012 (Biennial invitation-only conference for the leadership of the North American computing research community.)
  - UW ADVANCE Leadership workshops, Winter, Spring 2012.
  - Jossey-Bass Department Chair Leadership Institute, selected on-line sessions, March 2012.
- Invited Judge, Mobile Game Design Category, Microsoft Imagine Cup US National Finals, April 2011.
- Session Chair, SIGCSE 2010.
- Member, Education Program Committee, Eurographics 2010.
- International Program Committee, Serious Games Winter School 2010.
- Invited participants in Computer Graphics Education (CGE) 2004 Workshop.

Other Community Services and Activities
- Invited faculty panelist, *non-R1Academic Jobs*, School of Computer Science and Engineering, UW Seattle, Nov 2017.
- Faculty volunteer at Pathways to Academic Engagement Fair advising pre-major students, UWB, January 2016.
- Organized and enabled the offering of Java Programming Summer Camp on UWB campus, July 2015.
- Poster: "Game-Themed CS1/2: Empowering the Faculty," at UWB Undergraduate Research Fair, Organized by Office of Research, February 2013.
- Participant interview subject in *Progressive Design Project*, 2013 Innovation Forum: Engaging Design, UW Bothell, February 2013.
- "Videogames and Introductory Programming Concepts," Invited Presentation, Undergraduate Research Information Session, UWB, November 2012.
- Volunteered Faculty Representative (on behalf of CSS), Second Annual Exploring Majors Fair, UW Bothell, January 2012.

- Invited Presenter, Research In Progress Seminar, Office of Research, UW Bothell, October 2011.
- Invited Faculty Presenter, Discourse 2011 – Celebration of Research at UW Bothell, May 2011.
- Invited Faculty Panelist, Thinking Ahead to Graduate School, Panel Organized by Career Services, UW Bothell, May 2011.
- "Computing and Software Systems Program at University of Washington, Bothell," Invited talk, Engineering Department, Everett Community College, November 2010, October 2009.
- "Overview of Game-Themed Introductory Programming Project," Invited Presentation, The second annual UWB-CSS State of Computing Education Summit with Regional Community Colleges, November 2009.
- Invited Faculty Moderator, UW Bothell Research Symposium, UW Bothell, October 2009.
- Invited Faculty Fellow, Teaching and Learning Center Diversity Enhancement Project, UW Bothell, 2006-2007.
- Participated in the Discovery Faculty Cohort, Center for University Studies and Programs, UW Bothell, 2006.
- "Research and Teaching at the Computing and Software Systems Program, University of Washington, Bothell," Invited talk, Business Information Technology Program, Cascadia Community College, March 2003.
- Research Poster Presentation, UW Bothell Campus Retreat (2003).
- Invited participant, Teaching and Learning Network, Washington State Board for Community and Technical Colleges, Spring 2003 Retreat.
- Selected participant, Fourth Annual Institute for Teaching Excellence (ITE), Teaching Academy, University of Washington (June 2002).
- Faculty Fellowship, University of Washington, Summer 1999.

Honors
- Nominated, Outstanding Community-Engaged Scholar Award, 2020.
- Finalist, University of Washington Bothell Distinguished Teacher Award, 2015, 2014, 2013, 2009, 2004, and 2001.
- Richard C. & Lois M. Worthington Excellence in Technology Award, University of Washington Bothell, 2004.
- Richard C. & Lois M. Worthington Distinguished Scholar Award, University of Washington Bothell, 2004.
- Worthington Distinguished Professor Award, University of Washington Bothell, June 2001.
- Frederick Emmons Terman Teacher, School of Engineering, Stanford University, May 1999.
- Silicon Graphics Inc. Invention Incentive Awards, 1996, 1998.
- Selected as first customer intern from Research and Development, Alias|Wavefront, February 1998.
- The University of Illinois Graduate Fellowship, 1991-1992.
- The Berganthal Scholarship, Electrical Engineering Department, University of Wisconsin-Madison, 1985.
- Elected member of Sigma Xi, Phi Kappa Phi, Tau Beta Pi, and Eta Kappa Nu.

Other Publications
- **K. Sung**, K. Foster, S. Reimann, "Mobile Computing, Smartphones, and Existing Computer Science Classes," *in 24th IEEE Conference on Software Engineering Education and Training*, *Smart Phones in the Curriculum Workshop (SMACK 2011),* May 2011.
- **K. Sung**, and P. Shirley, "Teaching Computer Graphics Programming To Non-Traditional Returning Adult Students," Extended Abstract, *Eurographics/ACM SIGGRAPH Workshop on Computer Graphics Education 2004*, June 2004.
- Andrew Pearce and **Kelvin Sung**, "Maya Software Rendering: A Technical Overview," *Alias|Wavefront, Content Library, AP-M-MFA-02*, March 1998.
- Anthony Fang, **Kelvin Sung**, and Heng Pheng Ann, "Interactive Surface Rendering for Medical Visualization," *Technical Report, DISCS, NUS*, July 1994.
- **Kelvin Sung**, Jason Loh, and A. L. Ananda, "Ray Tracing in a Distributed Environment," *Technical Report (TRA4/94), DISCS, NUS*, April 1994.
- **Kelvin Sung**, "The Area Sampling Machine," PhD Thesis, *Department of Computer Science, University of Illinois at Urbana-Champaign*, October 1992.
- **Kelvin Sung**, "Tracing Rays with the Area Sampling Buffer," Technical Report, *Department of Computer Science, University of Illinois, UIUCDCS-R-91-1715 or UILU-ENG-91-1762*, November, 1991.

- **Kelvin Sung**, "UIPEX - A 3D Graphics Extension to the X Window System," Master's Thesis, *Department of Computer Science, University of Illinois at Urbana-Champaign, UIUCDCS-R-90-1584*, May 1990.
- **Kelvin Sung**, "UIPEX: Device Independent PEX Server Design Documentation," Technical Report, *Graphics Workstation Research Group, Department of Computer Science, University of Illinois, GWRG-90-5*, April, 1990.
- **Kelvin Sung** and William Brown, "UIPEX: Modeling Extension C Language Binding," Technical Report, *Graphics Workstation Research Group, Department of Computer Science, University of Illinois, GWRG-90-2*, April, 1990.

Last Update: Sep 2021.