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

2012–2013, 2015–2018	**Associate Director for Graduate Studies**
2013–2014	**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

Recent Grants

- "Interactive Affordability Model for WSAC Phase Two," *Washington Student Achievement Council*, $136,703, 2023-2024, PI: **K. Sung**, Co-PI: Jim Fridley.
- "Interactive Affordability Model for WSAC," *Washington Student Achievement Council*, $70,031, 2022-2023, PI: **K. Sung**, Co-PI: Jim Fridley.
- "Expanding Interactive College Affordability Model," *Lumina Foundation for Education*, Award Number: 10381, $945,300, 2017-2020. PI: Jim Fridley (University of Washington Seattle), 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 Seattle), 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).

Recent Internal Grants

- *Computing and Software Systems Division*, *University of Washington, Bothell*, Research Assistant Support
    - "College Affordability Index," One academic quarter, 2023-2024, September, 2023.
    - "Interactable Topographical Map," Three academic quarters, 2022-2023, September, 2022.
    - "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
    - "Bridging College Affordability," $5,000, March 2023.
    - "Reimagine the Classroom," $5,000, March 2022.
    - "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.
- "Using Emerging Technologies to Create Common Learning Environments," $30,000, *UW Bothell Scholarship, Research, and Creative Practice (SRCP) Seed Grant Program*, May 2022, PI: R. Angotti, Co-PI: **K. Sung**.
- "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.

Recent 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.

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

- "Basic Math for Game Development with Unity3D,"
  - **K. Sung**, G. Smith[+], *APress*, 2nd ed., January 2024. ISBN-13: 978-1-4842-9884-8.
  - **K. Sung**, G. Smith[+], *APress*, December 2019. ISBN-13: 978-1-4842-5442-4.
- "Build your own 2D Game Engine and Create Great Web Games,"
  - **K. Sung**, J. Pavleas, M. Munson[+], and J. Pace, *APress*, 2nd ed., Dec 2021. ISBN-13: 978-1-4842-7376-0.
  - **K. Sung**, J. Pavleas[+], F. Arnez[*], and J. Pace, *APress*, October 2015. ISBN-13: 978-14842-0953-0.
- 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.

Recent 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.
  - "Game Loop and Typical Implementation," https://doi.org/10.1007/978-3-319-08234-9_224-1, 2018.
  - "Interactive Computer Graphics and Model View Controller Architecture," https://doi.org/10.1007/978-3-319-08234-9_223-1, 2019.

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.
  - *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."*

Recent Refereed Publications [+]*Graduate students* [*]*Undergraduate students*

- B. Kuoch[*], R. Angotti, and **K. Sung**, "Lecture Board Game," in *15th Annual International Conference on Education and New Learning Technologies (EduLearn 2023)*, July 2023.
- K. Kurswani[*], E. Liao[*], D. Lorentz[*], E. Mo[*], R. Angotti, **K. Sung**, "Putting the 'Fun' in Functions: Engaging Students in Mathematical Functions Through VR," in *International Conference on Technology in Collegiate Mathematics* (ICTCM 2023), Denver, Colorado, March 16.
- A. Bucchiarone, K. M. L. Cooper, D. Lin, E. F. Melcer, and **K. Sung**, Games and Software Engineering: Engineering fun, inspiration, and motivation, *ACM SIGSOFT Software Engineering Notes*, vol. 48, No. 1, p. 85-89, Jan 2023. Available: https://dl.acm.org/doi/abs/10.1145/3573074.3573096.
- C. Leonie[*], R. Angotti, and **K. Sung**, "CourseExpo: An Immersive Collaborative Learning Ecosystem," in *ACM Symposium on Virtual Reality Software and Technology* (VRST 2022), Tsukuba, Japan, p. 1-2, Nov 2022. Available: https://doi.org/10.1145/3562939.3565646.
- J. Sung, **K. Sung**, "Integrating Videogames Development and Software Engineering in a College Senior Elective Course," *14th Annual International Conference on Education and New Learning Technologies (EduLearn 2022)*, p. 4338-4345, July 2022. Available: http://dx.doi.org/10.21125/edulearn.2022.1035.
- J. Chesnut[*], **K. Sung**, "Interactable Topographical Map with Remote Cross Reality Collaboration Support," *IEEE International Conference on Computational Intelligence & Virtual Environments for Measurement Systems and Applications (CIVEMSA)*, p. 1-5, June 2022. Available: http://dx.doi.org/10.1109/CIVEMSA53371.2022.9853708.

- 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.

Recent Peer Reviewed Tutorials/Workshops/Panels/Posters [+]*Graduate students* [*]*Undergraduate students*

- C. Leonie[*], R. Angotti, and **K. Sung**, "CourseExpo: An Immersive Collaborative Learning Ecosystem," Poster in *ACM Symposium on Virtual Reality Software and Technology* (VRST 2022), Tsukuba, Japan, Nov 2022.
- 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.

Recent 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).
- 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*.

Recent Articles Edited *as Editor of Entertainment Computing Column*, *IEEE Computer*, 2011-2014

- J. Bay, "Turning Video Gamers into Software Developers," Vol. 47, No. 10, PP. 99-101, October, 2014.
- C. Wangenheim, and A. Wangenheim, "Teaching Game Programming in Family Workshops," Vol. 47, No. 8, PP. 84-87, August, 2014.
- J. Pace, "Working with Students Where Theory and Practice Intersect," Vol. 47, No. 6 PP. 78-81, June 2014.
- P. Gruenbaum, "Undergraduates Teach Game Programming Using Scratch," Vol. 47, No. 2, PP. 82-84, February, 2014.

Recent 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
  - Princeton See(+), **K. Sung**, 2 sessions offered, August 2020. *Cancelled due to the COVID-19 pandemic.*
  - Christopher Kelley(*), **K. Sung**, 2 sessions offered, August 2019.
  - **K. Sung**, Arrido Arfiadi(*),2 sessions offered, August 2018.
  - **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
  - P. See(+), **K. Sung**, 3 sessions offered, July 2020. *One session cancelled due to the COVID-19 pandemic.*
  - Christopher Kelley(*), **K. Sung**, 4 sessions offered, July 2019.
  - **K. Sung**, Nico Espina(*), 4 sessions offered, July 2018.
  - **K. Sung**, Karen Gourd, Ann McMahon, 8 sessions offered, July 2017.
  - **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.

Recent Invited Short Courses/Workshops/Presentations

- "Introduction to 2D Game Engine Development," Invited Short Course,
  - Invited one-week short course, *School of Software Engineering*, *Xi'an Jiaotong University* (西安交通大学)*,* Xi'an, China, March 2024, March 2019. (Host: Professors 唐亚哲, 王龙翔)
  - Invited two-week short course, *Summer Workshop*, *School of Computing*, *National University of Singapore,* July 2019, July 2018. (Host: Professor TiowSeng Tan)
  - Invited two-week short course, *Suzhou Research Institute*, *National University of Singapore,* July 2017, July 2016. (Host: Professor TiowSeng Tan)
- "Introduction to Game Development," Invited Short Course,
  - Invited two-week short course, *Summer Workshop*, *School of Computing*, *National University of Singapore*, July 2023, July 2024. (Host: Professor TiowSeng Tan).
  - Invited two-week on-line short course, *Summer Workshop*, *School of Computing*, *National University of Singapore,* July 2021, July 2022. (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.*
- "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.

Recent Work/Results Featured in Public Publications/Websites

- "Career switch to software engineering led to five NASA internships," Feature Story on UWB Website, Lacey Arnold, https://www.uwb.edu/stem-news/february-2023/career-switch-software-engineering-nasa-internships, February 1, 2023.
- "From the classroom to cloud computing," Feature Story on UWB Website, https://www.uwb.edu/news/december-2022/from-the-class-room-to-cloud-computing, December 23, 2022.

- "Firefighters can train in VR, save water," Feature Story on UWB Website, Douglas Esser, 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.

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

- o **CSS 501**: Data Structures and Object-oriented Programming 1

Recent Graduate Student Supervisions

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

Masters Thesis Supervised:

2023: Brandon Vassion – Investigating Constrained Objects in AR for Validation of Real-Life Models

2022: Luyao Wang – Real-Time Hatch Rendering

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 Supervised:

2023: Parker Ford – System for Real Time Volumetric Cloud Rendering

Barack Liu – Guidelines for Interactive Fiction Game Developers

Khaleelur Rehman – Multi-Tier System Performance Optimization

Yiwei Tu – Interactive Watercolor Painting

Tyler Choi – Enhancing Search and Rescue Operations: A Pragmatic Application of User-Centered Development

2022: Di Wang – Real-Time Cloth Simulation

Liwen Fan – Real-Time Realistic Fluid Rendering

Andrew Nelson – Real-Time Caustic Illumination

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

Masters Thesis Committees Served:

2024: Chloe Ma – Advancing DeepTracer Protein Structure Prediction: Leveraging Graph Neural Networks in Cryo-EM Maps and AlphaFold 2. Advisor: Dong Si

2022: Brian Luger – Parallelization of Agent-based Models over Multi-GPUs. Advisor: Munehiro Fukuda

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

Capstone Committees Served:

2023: Wen-Jui Cheng – Fine Arts Education through Motion-Control Simulation. Advisor: William Erdly

Divya Kamath – Migrating a complex, CPU-GPU based simulator to modern C++ standard. Advisor: Michael Stiber

Matt Dioso – CSI: Channel State Investigation A Device Localization System based on Physical Layer Properties. Advisor: Brent Lagesse

2022: Ashwini Rudrawar – Evaluating impacts of API evolution of GPUs on software development and application performance. Advisor: Michael Stiber.

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

Graduate Independent Studies Supervised:

2023: Sanjay Penmetsa – API End-point and DB Testing

Khaleelur Rehman – Multi-Tier Architecture Performance Optimization

Manu Hegde – Multi-Tier System Security and Configuration

2022: Harshit Rajvaidya – Multi-Tier Architecture and Implementation Technologies

Tyler Choi – Interactive Exploration of Topological Terrain

Liwen Fan and Owen Camber – Infrastructure Support for P2P Physics Simulation

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$^\Phi$ – Web-based Visualization System
Koukeng Yang, Michael Tanaya, and Duncan MacMichael$^\Phi$ – 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

Recent Undergraduate Independent Student Research Projects Supervisions

$^\Phi$Co-supervised with Professor James Fridley, School of Environmental and Forest Sciences, UW Seattle

Independent Research Projects Supervised:
2024: William Bach – Multi-Tier API and DB Testing
Dong Nguyen – Front-end UI State Management
2023: Kyle Huynh – User Interface for System Test Suit
Austin Morales – Full Stack System Profiling
Elygh Thao – 2D Character Animation for Fighting Games
Vincent Allen, Brandon Jackson. Abdul Naveed, Elygh Thao – Cyberpunk Fighting Games
Jino Chai, Jason Nguyen, Alicia Taing –Peer-to-Peer Network Support for Videogames
Mikhail Ermolenko, Pavel Peev, Justin Seo, Po-Lin Tu, Davion Li – Underwater Visual Effects in Videogames
Kobe Kamin, Jacob Tea – Network Turn-Based Strategy Games
2022: River Hill, Talon Martin, Pavel Peeve and Paul White – CourseXpo: Spatial Chat, Collaborative Quiz & Drawing
Khushaal Kurswani, Edward Liao, Daniel Lorentz, and Ethan Mo – Touching and Playing with Functions
Britney Kuoch – Classroom Engagement via Gamified Quizzes
Connor Leonie – Reimaging Education Ecosystem in the Virtual World
Myles Dalton – Building Support for Learning GTCS Game Engine API
Shaun Stangler – Transporting Reality in CRCS
Isabella Abad, Britney Kuoch, and Daniel Kim – Board Quiz (networked in-class exercise game)
Tyler Miller, Nathan Miller, Pavel Peev, and Gary Yuen – Exercise Gallery (networked in-class exercise sharing system)
Andy Tran, Patrick Miles, Derek Slater, and Connor Leonie – Learning Exposition (networked learning management system for VR)
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 (networked collaborative height map visualization system)
Nicholas Chambers, Sammy Lew, and Nathan Ngo – No Air Hockey (networked VR game)
Joshua Sterner, Eunmin Lee, Kenneth Ven, and Cheuk-Hang Tse – Puzzle Speed Run (networked collaborative puzzle game)
Kevin Blair, Connor Browne, Josh Max, and Alex Niu* – Tele-Meeting, a networked 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[Φ] – 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[Φ] – 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[Φ] – 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).

CSS Undergraduate Capstone and Internship Projects Supervised:
2023: Chloe Ngo (Aeyesafe, Fall), Austin Ferdinand Ricafrente Morales (Weyerhaeuser, Summer), Clement Gomiero (Kaiser Aluminum, Summer), Jess Hathcock (Lavner Education, Summer), Vincent Allen (CRCS UWB, Summer), Jino Cho Chai (CRCS UWB, Summer), Mikhail Ermolenko (CRCS UWB, Summer), Brandon Jackson (CRCS UWB, Summer), Kobe Kamin (CRCS UWB, Summer), Abdul Ahad Naveed (CRCS UWB, Summer), Jason Nguyen (CRCS UWB, Summer), Pavel Zdravkov Peev (CRCS UWB, Summer), Justin Seo (CRCS UWB, Summer), Alicia Meili Taing (CRCS UWB, Summer), Jacob Lee Tea (CRCS UWB, Summer), Elygh Kosmos Thao (CRCS UWB, Summer), Po-Lin Tu (CRCS UWB, Summer), Davion Li (CRCS UWB, Summer), Parth Nain (Renshuu, Spring), Kyle Huynh (College Affordability UWB, Spring), Austin Ferdinand Ricafrente Morales (College Affordability UWB, Spring).
2022: Rashid Ibrahim (Activision Blizzard, Summer), Robbie Diamante (MagMutual Insurance, Summer), David Tkach (Premera Blue Cross, Summer), Christopher Marvelle (Expedia, Summer), Aman Swaroop (Microsoft, Summer), River Hill (CRCS UWB, Summer), Talon Martin (CRCS UWB, Summer), Paul White (CRCS UWB, Summer), Khushaal Kurswani (CRCS UWB, Summer), Edward Liao (CRCS UWB, Summer), Daniel Lorentz (CRCS UWB, Summer), Ethan Mo (CRCS UWB, Summer), Dylan Thibault (Efinity Technologies, Winter), Isabella Abad (CRCS UWB, Spring), Britney Kuoch (CRCS UWB, Spring), Daniel Kim (CRCS UWB, Spring), Tyler Miller (CRCS UWB, Spring), Nathan Miller (CRCS UWB, Spring), Gary Yuen (CRCS UWB, Spring), Andy Tran (CRCS UWB, Spring), Patrick Miles (CRCS UWB, Spring), Derek Slater (CRCS UWB, Spring), Connor Leonie (CRCS UWB, Spring), Myles Dalton (CRCS UWB, Spring).
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).

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, 2023-2024).
- 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, 2022-2024
    - Member: 2010-2011, 2013, 2016-2022
  - 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:

- o Graduate Admissions Committee:
  - Chair: 2011-2013, 2015-2018
  - Member: 2010-2011, 2013-2014, 2018-2022
- o Undergraduate Admissions Committee:
  - Chair: 2008-2010, 2013-2014
  - Member: 2010-2011
- Faculty Affairs:
  - o Personnel Review Committees
    - Professor, Teaching Professor and Professor of Practice
      - Appointed Member: 2021-2024
    - Associate Professor and Associate Teaching Professor:
      - Elected Member: 2022, 2023
    - Senior:
      - Elected Chair: 2009, 2012, 2013, 2016
      - Elected Member: 2011, 2014, 2016-2021
    - Junior:
      - 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 Annual Review Committee
    - Member: 2021
  - o Research Faculty Search Committee
    - Chair: 2012
  - o Promotion and Tenure Committee:
    - Chair: 2000, 2013, 2017, 2020, 2022
    - Member: 2006, 2013, 2016, 2017, 2019 (x6), 2020 (x2), 2022
  - o Academic Appeals Committee
    - Member: 2007, 2008, 2022-2023.
  - o Junior Faculty Mentoring: 2014—Now
- Others:
  - o Organizer and Presenter: CSS SKL 342 BootCamp
    - 2022 Fall: Co-Presenters: Rene Gomez
    - 2022 Winter: Co-Presenters: Michael Stiber, Rene Gomez
    - 2023 Winter, Spring, Fall: Co-Presenter: Rene Gomez
    - 2024 Winter: Co-Presenter: Rene Gomez
  - o Elected to CSS RA-Award Review Committee: 2016, 2017, 2021, 2022
  - 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, 2023-2024
  - o Strategic Initiatives Committee: External Curriculum
    - External Curriculum Chair: 2008-2009
    - Member: 2004, 2006-2008

Recent General Campus Services

- Invited Reviewer, Mary Gates Research Scholarship, University of Washington, Winter 2024, Fall 2023, Winter 2022-2019, Winter/Spring/Fall 2016, Spring/Fall 2015, Spring/Fall 2014.
- Invited Panelist, *Faculty Panel*, CSS Graduate Student Orientation, September, 2023.
- 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.
  - o April 2016: https://www.tealsk12.org/events/y2016/fieldtrip/redmond/
  - o 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.

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; CSEDU.

Other Professional Activities
- Program Committee, SIBGRAPI 2023, 2022, 2021, Conference on Graphics, Patterns and Images.
- Member, Technical Advisory Committee, Cascadia College, 2017-2023.
- Session Chair, Computer Science and Programming in High Education, EduLearn22, July 2022.
- Invite Reviewer, Applied Baccalaureate Proposal for Bachelor of Science in Computer Science, NW Connect Consortium, July 2022.
- Co-organizer (with Antonio Bucchiarone, Kendra M. L. Cooper, Dayi Lin, and Edward F. Melcer), GAS 2022: ICSE2022 Workshop on Games and Software Engineering: Engineering fun, inspiration, and motivation, Pittsburgh, PA, May 2022.
- 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).

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.

Last Update: Jan 2024.