

Andrew Q. Nato

PROFESSIONAL SUMMARY

Skilled and dedicated computational geneticist with extensive research background in both dry and wet lab environments keen to meticulously analyze complex data and develop methods, pipelines, and resources such as PBAP and Rutgers Map

CORE QUALIFICATIONS

- Background in bioinformatics, computational and statistical genetics as well as molecular biology, radiation biochemistry, and health physics
- Quality control (QC), data assessment, troubleshooting, analytics
- Compiles research and conducts presentations
- Knowledge of analysis software
- Published 23 articles as first- co-, and PAGE consortium banner-author in scientific journals including *Nature*, *PLoS Biology*, *Developmental Biology*, *Human Genetics*, *Nature Genetics*, *Molecular Biology and Evolution*, *Bioinformatics*, *BMC Proceedings*, and the *Annals of Human Genetics* with more than 1100 citations based on the Web of Science
- Served as a journal referee for 26 articles in 16 journals
- Mentored undergrad/grad students in the Philippines and in the USA

WORK EXPERIENCE

Current Field: Computational & Statistical Genetics
6+ years postdoctoral experience

Senior Fellow

University of Washington

3/1/2013-present

Seattle, WA

- Lead development of a pedigree-based analysis pipeline (PBAP) that implements essential steps and QC checks prior to family-based analysis
- Identify candidate regions, genes, and/or variants for IQ discrepancy in autism using SNP and whole exome sequencing data
- PBAP was used in file manipulation, marker sub-selection, pedigree checking, and sampling of inheritance vectors in ~100 families from the Alzheimer's Disease Sequencing Project (ADSP)
- Impute whole genome sequence variants in ungenotyped related individuals for ADSP

Postdoctoral Associate

Rutgers University

7/1/2011-2/28/2013

Piscataway, NJ

- On team that developed and performed QC procedures for combining and analyzing datasets of PAGE cohorts
- Interpolated genetic locations of millions of markers for Rutgers Map users

Graduate Assistant

Rutgers University

9/1/2005-6/30/2011

Piscataway, NJ

- Developed a novel integrative statistical method to define putative schizophrenia candidate gene regions by comparing and combining results of about four dozen independent genomewide linkage studies
- Constructed the third version of the combined linkage-physical map of the human genome (Rutgers Map v.3) containing ~52 million markers
- Created the Rutgers Map Interpolator that allows users to obtain interpolated genetic locations of queried physical positions
- Developed a bioinformatics pipeline to identify candidate genes for mouse developmental QTL (devQTL) and identified candidate genes involved in modifying severity of neural tube defects and cataracts
- On team that developed a method for genetic association with longitudinal phenotypes using next generation sequencing (NGS) data
- Designed and performed simulations to test performance of the linear trend test allowing for error and applied to NGS under different inheritance models and parameter values including coverage and differential error rates

Personal info

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Google Scholar

scholar.google.com/citations?user=f3ZoIMAAAAJ&hl=en

Technical and analysis skills

Developed tools and resources

PBAP, Rutgers Map, Rutgers Map Interpolator, SCR Search Tool, devQTL

Linkage analysis

MORGAN, MERLIN, LINKAGE, PBAP

Exome sequencing and annotation

VCFTools, ANNOVAR, SeattleSeq

Imputation

GIGI, GIGI-Quick, IMPUTE2, BEAGLE, MaCH, minimac

Other statistical genetics programs

SOLAR, PLINK, LTT_ae, CRI-MAP

Tertiary genetic data analysis

SNP panels, next gen sequencing data

Pathway analysis

Ingenuity Pathway Analysis, Reactome

Online tools and resources

NCBI, UCSC, 1000 Genomes, dbGaP, WebGestalt, BLAST, LiftOver, Bgee, SZGene, AlzGene, PDGene, ClustalX

Programming

Linux systems, Perl, CGI, HTML, shell scripting, awk, R, MySQL

Linux system administration

Sun Grid engine and management of cluster queues, hosts, and users, high-performance cluster (HPC) computing

**Previous Fields: Molecular Biology, Radiation Biochemistry, & Health Physics
10+ years work experience**

Science Research Specialist II 9/5/2002-8/17/2004
Science Research Specialist I 1/3/1994-9/4/2002
Philippine Nuclear Research Institute Quezon City, Philippines

- As co-investigator, detected *BRCA1* truncating mutations and/or putative polymorphisms among familial Filipino breast cancer patients using radioactive and non-radioactive techniques
- Distinguished ^{60}Co γ radiation-induced variants of ornamentals and foliage plants from the wild type by AFLP-PCR mutational screening
- Worked closely with principal investigator in establishing a molecular biology lab infrastructure
- Measured and evaluated ambient gamma dose rates in areas of interest in the Philippines
- Assessed potential sites for the Philippine monitoring site (RN-52) by performing environmental and radiological surveillance
- Created contour map of marine radioactivity in the whole Asia-Pacific Region
- On team that diligently compiled first two versions of the Asia-Pacific Marine Radioactivity Database
- Sampled sediments using sediment core and grab sampling techniques in Subic Bay, Imuruan Bay (Palawan), and Sulu Sea
- Performed chromophore experiment and developed a tyrosinase assay for pupal homogenate of Oriental fruit fly
- Isolated protein by elution and lyophilization
- Detected trace elements in isolated protein by total x-ray fluorescence spectroscopy
- Analyzed HGPRT mutation indices of residents in Valenzuela (most-polluted) and Las Piñas (least-polluted)

EDUCATION

Ph.D., Microbiology and Molecular Genetics / Computational Genetics
Rutgers University, Piscataway, NJ, USA, 2011

Certificate of Concentration in Bioinformatics
University of Medicine & Dentistry of New Jersey, Piscataway, NJ, USA, 2010

M.S., Molecular Biology and Biotechnology
University of the Philippines, Diliman, Quezon City, Philippines, 2003

B.S., Molecular Biology and Biotechnology
University of the Philippines, Diliman, Quezon City, Philippines, 1993

PUBLICATIONS AND PRESENTATIONS

Peer-reviewed: 23

Technical and progress reports: 10

Conference proceedings: 8

Oral presentations: Nato-presented: 10; Co-authored: 15

Posters: Nato-presented: 24; Co-authored: 26

AFFILIATIONS AND COMMITTEES

Trainee Member, American Society of Human Genetics (ASHG), 2006-present

Member, Joint Molecular Biosciences Graduate Student Association, 2004-2011

Member, Philippine Association for Radiation Protection (PARP), 1995-2004

Member, Philippine Society for Biochemistry and Molecular Biology, 1994-present

Member, Radioisotope Society of the Philippines (RSP), 1994-2004

Member, ASHG Seattle Genetics Meet-Up Working Group, June-Dec 2015

Member, ASHG Featured Chat Fridays Subcommittee, 2014-2017

Second-Round Judge, ASHG's DNA Day Essay Contest, 2014-2017

Member, Website Committee, Dept. of Genetics, Rutgers University, 2006-2008