Zhian N. Kamvar

Curriculum Vitae

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Education

2011–Present **Ph.D. Plant Pathology**, *Oregon State University (OSU)*, Corvallis, OR.
Expected 2017

2007 **B.S. Biology**, *Truman State University (TSU)*, Kirksville, MO.
Minor: Chemistry

Employment

2012–Present **Thesis Research**, *Grünwald Lab*, OSU, Corvallis, OR.
My goal is to determine pattern and process in the evolution of the plant pathogen *Phytophthora syringae* by utilizing population genomic tools to analyze genetic differentiation within and among nursery populations.

Details:

- Designed simulation analyses for populations of partially clonal diploid organisms
- Authored R package for genetic analysis of organisms with mixed reproduction (sexual/clonal) (`https://github.com/grunwaldlab/poppr`)
- Isolated, maintained, and extracted DNA of *Phytophthora syringae* for the purposes of Genotyping By Sequencing.
- **Research Advisor: Dr. Niklaus J. Grünwald**

Aug–Dec 2011 **Rotation**, *Jaiswal Lab*, OSU, Corvallis, OR.
Engaged in various research projects combining bioinformatic-based text mining of databases, wet lab, and greenhouse work. **Research Advisor: Dr. Pankaj Jaiswal**

2006–2007 **Undergraduate Research Assistant**, *Biology Discipline*, TSU, Kirksville, MO.
As part of a team of undergraduate students, contributed to the annotation of over 2,000 maize genes determined by microarray hybridization analysis to be differentially regulated in the *Zea mays* shoot apical meristem.

Details:

- Became proficient in performing and interpreting BLAST and InterProScan searches on sequences, identifying and assessing pertinent primary literature, and using a variety of databases to determine the putative function of maize genes.
- Collaborated with other researchers on the same project.
- **Research Mentors: Drs. Brent Buckner and Diane Janick-Buckner**

Authored Software

Main Author:	**poppr**	*R package for analysis of populations with mixed reproductive modes*
Contributor:	**adegenet**	*R package for multivariate analysis of population genetics*
	phytophthora-id	*Web application for identification of clonal lineages of two Phytophthora species*

Computer skills

Advanced	R
Intermediate	PYTHON, PERL, C, LaTeX, OpenOffice, Linux, OSX
Basic	BASH, Inkscape

Teaching

2014 **Population Genetics in R**, *Workshop*.
I wrote and instructed a 4 hour workshop with Drs. Niklaus Grünwald and Sydney Everhart. This workshop introduces tools and concepts that allow researchers to easily perform population genetic analyses in the R statistical environment. http://grunwaldlab.cgrb.oregonstate.edu/popgen

Sessions:

- *May 17, 2014* Oregon State University
- *August 9, 2014* American Phytopathology Society (APS) 2014 National Conference

Spring 2012 **Graduate Teaching Assistant**, *Biology Dept.*, OSU, Corvallis, OR.
Lead laboratories of ∼48 students in organismal diversity, organ systems, plant and animal physiology, genetics, evolution and ecology.

Responsibilities:

- Developed introductory presentations for quizzes and labs
- Proctored all tests and quizzes
- Graded assignments and provided students with timely feedback
- Held office hours once a week

2009–2011 **English Instructor**, *Herald NIE*, Joong-Dong, Daegu, South Korea.
Taught basic to intermediate English to Korean students ranging from elementary to middle school with an emphasis on task-based learning techniques.

Details:

- Took charge of 18 different classes per week
- Monitored language acquisition of each student via monthly evaluations based on interviews and speaking tests
- Wrote tests, assigned and graded homework pertinent to the level of the students. Initiated and mediated interesting topics for discussion courses

2008–2009 **English Instructor**, *GnB English*, Sangin-2-Dong, Daegu, South Korea.
Taught basic to intermediate English to Korean students ranging from elementary to middle school in tandem with one of the nine Korean English teachers at the academy.

Details:

- Assisted with at least 30 different classes per week
- Monitored language acquisition of students throughout the year
- Gained the ability to be prepared for sudden changes in cirriculum and classroom size.

Fall 2006/07 **Undergraduate Teaching Assistant**, *Biology Discipline*, TSU, Kirksville, MO.
Appointed as teaching assistant for undergraduate cell biology course.

Details:

- Helped prepare instructional labs for students of Dr. Diane Janick-Buckner's Cell Biology class
- Responded to student lab questions and referred to professor questions outside of my expertise/knowledge base

Spoken Languages

English **Mother tongue**

Korean **Intermediate** *Can manage basic conversation*

Outreach, Service, and Extracurricular Activities

2012–Present **Radio Co-host**, *Inspiration Dissemination*, KBVR FM, OSU, Corvallis.
Co-created, produced, and hosted a weekly radio show interviewing graduate students in STEM fields about their research and experiences in graduate school.

Details:

- Provided opportunity for graduate students to present their research in a unique form of outreach.
- Actively worked with graduate students to improve their science communication skills.
- Assisted undergraduate media students in gaining real world audio post-production experience.

2012–Present **Active Contributor**, *Bioinformatics Users Group*, OSU.
Contributed presentations and discussions relevant to use of bioinformatics tools such as workflows in the R statistical environment.

2012–2014 **Treasurer**, *Graduate Student Association*, Department of Botany and Plant Pathology, OSU.
Balanced the budget, served on bi-annual travel awards committee, helped organize and coordinate group social functions.

Summer 2005 **Summer Station Manager**, KTRM FM, TSU, Kirksville, MO.
I was the primary authority on personnel decisions, after input from team members. I organized the weekly schedule of DJs, determined the salaries of station directors and balanced a budget.

2004–2007 **Radio Announcer**, KTRM FM, TSU, Kirksville, MO.
I ensured successful operation of the transmitter, covered extra scheduled shifts to ensure KTRM stayed on air, and selected appropriate play-lists for listeners.

Awards

2014 OSU Botany and Plant Pathology Anita Summers Travel Award – $1000

2014 Most Innovative [Radio] Program – Intercollegiate Broadcasting System

2013 Seattle Institute For Statistical Genetics Travel Award – $450

2006 Truman State University Summer Research Stipend – $3000

2003 Truman State University Presidential Leadership Scholarship – $2000

Peer Reviewed Publications

1. **Kamvar ZN**, Larsen MM, Kanaskie AM, Hansen EM, and Grünwald NJ. Spatial and temporal population dynamics of the sudden oak death epidemic in Oregon forests. *Phytopathology*. **submitted.**

2. Weiland JE, Garrido PA, **Kamvar ZN**, Marek SM, Grünwald NJ, and Garzón CD. Population structure of *Pythium irregulare*, *P. sylvaticum*, and *P. ultimum* in forest nursery soils of Oregon and Washington. *Phytopathology*. **in press**.

3. **Kamvar ZN**, Tabima JF, Grünwald NJ. (2014) *Poppr*: an R package for genetic analysis of populations with clonal, partially clonal, and/or sexual reproduction. PeerJ **2**: e281 http://dx.doi.org/10.7717/peerj.281

4. Buckner B, Beck J, Browning, K, Hoxha E, Grantham L, **Kamvar ZN**, Lough A, Nikolova O, and Schnable PS, Scanlon MJ, and Janick-Buckner D. (2007) Involving undergraduates in the annotation and analysis of global gene expression studies: creation of a maize shoot apical meristem expression database. *Genetics* **176**: 741-747 http://dx.doi.org/10.1534/genetics.106.066472

Contributed Presentations

1. **Kamvar ZN**, Tabima JF, Grünwald NJ. (2014) Application of the R package poppr for analysis of population genetic data. American Phytopathological Society National Conference, Minneapolis,

MN.

2. **Kamvar ZN** (2013) Ph.D. Proposal Seminar: Determination of pattern and process in the evolution of the plant pathogen *Phytophthora syringae*. Department of Botany and Plant Pathology, Oregon State University, Corvallis, OR.

3. **Kamvar ZN** (2013) *Poppr*: An R package for genetic analysis of populations with mixed (clonal/sexual) reproduction. Biology Graduate Student Symposium, Hatfield Marine Science Center, Newport OR.

4. **Kamvar ZN**, Tabima JF, Grünwald NJ (2013) *Poppr*: An R package for genetic analysis of populations with mixed (clonal/sexual) reproduction. Fungal Genetics Conference, Asilomar, CA.

5. **Kamvar ZN**, Grünwald NJ (2012) *Poppr*: An R package for popualtion genetic analysis. OSU Fall CGRB Conference, Oregon State University, Corvallis, OR.

6. Browning K, Fritz A, Hoxha E, and **Kamvar ZN** (2007) Annotation and analysis of global gene expression studies: creation of a maize shoot apical meristem expression database, Maize Genetics Conference, St. Charles, IL.

7. Browning K, Fritz A, Hoxha E, and **Kamvar ZN** (2007) Annotation and analysis of global gene expression studies: creation of a maize shoot apical meristem expression database, Truman Student Research Conference, Truman State University, Kirksville, MO.