Maximilian Oliver Press, PhD
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PROFESSIONAL EXPERIENCE

Senior Bioinformatics Engineer, Phase Genomics Inc. (June 2017-present).
Designed algorithms, developed software, and performed dev-ops integration in a cutting-edge genomics service company. Worked actively with academic and industry customers to provide solutions to genome analysis problems using Hi-C data.

Postdoctoral fellow, University of Washington, Department of Genome Sciences (June 2016-June 2017). Supervisor: Dr. Christine Queitsch.

- Performed independent and self-directed research.
- Optimized sequencing assays for genotyping short tandem repeats (STRs).
- Optimized software pipelines for high-throughput sequencing
- Performed functional and evolutionary analysis of natural STR variation in *A. thaliana*.

Graduate Research Assistant, University of Washington, Department of Genome Sciences, (2010-2016). Advisors: Dr. Christine Queitsch, Dr. Elhanan Borenstein

- Developed and applied computational methods for studying bacterial genome evolution
- Developed and applied genetic analysis methods for *Arabidopsis thaliana*
- Mentored, trained, and supervised junior students, volunteers, and undergraduates
- Wrote several papers published in leading journals
- Wrote training and large (R01) grants for submission to NIH and NSF
- Presented research at international meetings

Research Technician, Fred Hutchinson Cancer Research Center, Basic Sciences Division, 2008-2010. Supervisor: Dr. Sue Biggins

- Constructed yeast strains via cloning, crossing, and transformation
- Characterized protein function with biochemical, genetic, and cell biology techniques
- Managed laboratory stocks, supervised lab helpers, acted as radiation safety coordinator

EDUCATION AND RESEARCH

Postdoctoral Fellowship (June 2016-June 2017), University of Washington, with Christine Queitsch.
Project: Highly accurate short tandem repeat genotyping reveals heritable variation and signatures of selection.

PhD Genome Sciences (June 2016), University of Washington, with Christine Queitsch and Elhanan Borenstein.
Thesis: "The effects of epistasis at different scales in the evolutionary process."

BA Biology (2008), Reed College. Undergraduate study with Robert Kaplan.
Thesis: "Microevolution of *Gasterosteus aculeatus* in the Johnson Creek watershed."

PUBLICATIONS (see also Pubmed, bioRxiv, Google scholar)

- **Press MO**, Queitsch C (2017). "Variability in a Short Tandem Repeat Mediates Complex Epistatic Interactions in *Arabidopsis thaliana*." *Genetics,* 205(1): 455-464.
- **Press MO**, Lanctot A, Queitsch C (2016). "PIF4 and ELF3 act independently in *Arabidopsis thaliana* thermoresponsive flowering." *PLOS ONE* 11(8): e0161791.
- **Press MO**, Queitsch C, Borenstein E (2016). "Evolutionary assembly patterns of prokaryotic genomes." *Genome Research* 26: 826-833.
- Carlson KD, Sudmant PH, **Press MO**, *et al.* (2015). "MIPSTR: a method for multiplex

genotyping of germ-line and somatic STR variation across many individuals." *Genome Research* 25(5):750-761.

- Rival P*, **Press MO***, Bale J*, *et al.* (2014). "The conserved *PFT1* tandem repeat is crucial for proper flowering in *Arabidopsis thaliana*" *Genetics* 198(2): 747-754.
- **Press MO**, Carlson KD, Queitsch C (2014). "The overdue promise of short tandem repeat variation for heritability." *Trends in Genetics* 30(11) 504-512.
- **Press MO*** *et al.* (2013). "Genome-scale co-evolutionary analysis identifies functions and clients of bacterial Hsp90." *PLOS Genetics* 9(8): e1003631
- Undurraga S, **Press MO**, *et al.* (2012). "Background-dependent effects of polyglutamine variation in the *Arabidopsis thaliana* gene *ELF3*." *PNAS* 109(47):19363-7.
- Ranjitkar P, **Press MO**, *et al.* (2010). "An E3 ubiquitin ligase prevents ectopic localization of the centromeric histone H3 variant via the centromere targeting domain." *Molecular Cell* 40(3): 455-64.

*: equal contribution

Manuscripts in review

- **Press MO** *et al.* (2017). "Massive variation of short tandem repeats with functional consequences across strains of *Arabidopsis thaliana*." bioRxiv: https://doi.org/10.1101/145128

Working manuscripts

- **Press MO** *et al.* (2017). "Hi-C deconvolution of a human gut microbiome yields high-quality draft genomes and reveals plasmid-genome interactions." bioRxiv: https://doi.org/10.1101/198713

SELECTED PRESENTATIONS

- Talk: Thermomorphogenesis Meeting 2016: "PIF4 and ELF3 Act Independently in Arabidopsis thaliana Thermoresponsive Flowering". Halle, Germany
- Talk: The Allied Genetics Conference, July 2016: "The variable ELF3 polyglutamine is an epistatic hub." Orlando, FL
- Talk: Congress of the Society for Molecular Biology and Evolution, July 2015: "Evolutionary Assembly Patterns of Prokaryotic Genomes." Vienna, Austria
- Talk: 6th International Conference on the Hsp90 chaperone machine, September 2012: "Evolutionary Inference of bacterial Hsp90 functions." Les Diablerets, Switzerland

FELLOWSHIPS AND AWARDS

- 2015: UW Graduate School Fund for Excellence and Innovation Travel Grant
- 2011-2013: NIH NHGRI Genomics Training Grant 2T32HG35-16
- 2008: Phi Beta Kappa (Reed College)
- 2007-8: Miller Undergraduate Research Foundation grant, Reed College
- 2004-8: 3 Commendations for Excellence in Scholarship, Reed College

TEACHING AND MENTORING

University of Washington

- **Teaching assistant** (GENOME 351: Human Genetics for non-majors), UW. Spring 2014
- **Teaching assistant** (GENOME 371: Introductory Genetics), UW. Fall 2012
- **Research mentor,** I was the direct supervisor for four members of the Queitsch lab: Katie Uckele (volunteer, 2014-2015), and rotation students Amy Lanctot (Spring 2015), Ashley Roarty (Winter 2016), Alberto Rivera (Fall 2016).

Reed College

- **Tutor** (Biology 101/102: Introductory Biology), 2005-2008

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PEER REVIEW:

- **Reviewer:** *Nature Communications, Nature Methods, PCI Evolutionary Biology, Matters.*
- **Sub-reviewer for C. Queitsch:** *PNAS*, *Nature Methods, PLOS Genetics, Human Genetics, American Journal of Primatology*.
- **Sub-reviewer for E. Borenstein:** *RECOMB* 2012, *Scientific Reports.*

SCHOLARLY SOCIETY MEMBERSHIPS

Society for Molecular Biology and Evolution.
Genetics Society of America.
Peer Community in Evolutionary Biology.

SERVICE AND OUTREACH ACTIVITIES

- **Co-instructor,** GRE preparation course. July 2014, July 2015, (short class for underrepresented minority undergraduates).
- **Organizer**, 2012 NHGRI UW Genome Training Grant Symposium.
- **Instructor**, Basic ideas of bioinformatics, June 2012, (short class for HS teachers).
- **Departmental coordinator**, 2012 Science Education Partnership, Genome Sciences.
- **Restoration volunteer,** Adopt-a-Stream Foundation, (Summer-Winter 2005). Wetlands restoration field work.
- **Volunteer,** Students for Empowering, Educating, Diversity and Service (SEEDS), Reed College chapter (2004-2008). Taught middle school students about wetland restoration.

REFERENCES

- **Dr. Christine Queitsch, University of Washington Dept. Genome Sciences.**
  queitsch@uw.edu

- **Dr. Elhanan Borenstein, University of Washington Dept. Genome Sciences.**
  elbo@uw.edu

- **Dr. Joe Felsenstein, University of Washington Dept. Genome Sciences.**
  joe@gs.washington.edu

- **Dr. Sue Biggins, Fred Hutchinson Cancer Research Center, Howard Hughes Medical Institute.**
  sbiggins@fhcrc.org