

Justin D Vrana

software engineer | synthetic biologist



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Education

2021 (anticipated)

PhD, Bioengineering

University of Washington-Seattle

2010

BS, Chemistry & Philosophy

University of Wisconsin-Madison

2010

Cert. of Computer Science

University of Wisconsin-Madison

Skills

Programming Languages Python, Java, C++, Ruby
Frameworks Pytorch
Discrete mathematics (networks/graphs) Algorithm development

Selected Awards

2018	DLA Piper \$2,500 Best Idea with Global Reach	A start up centered around a drug-resistance detection diagnostic automation
2018	UW Business Plan Competition (Final 16)	For business plan for OLASimple.
2017	\$100K Amazon Catalyst Grant	For cloud laboratory for genetic engineering to expand to automated mammalian cell work.

Relevant Experience

2018-2021	University of Washington	Researcher for DARPA Synergistic Design and Discovery (SD2)
2014-2021	Klavins Lab, University of Washington	Graduate Researcher
2018	University of Washington	Teaching Assistant
2017-2018	Software Lead	OLA Simple, Seattle, Washington
2017-2018	Amazon Catalyst Fellow	University of Washington
2016-2018	Workflow Developer	UW Biofab, Seattle, Washington
2011-2014	Research Assistant	C Tucker Lab, University of Colorado-Denver
2008-2011	Research Assistant	DC Schwartz Lab, University of Wisconsin-Madison

Selected Open-Source Software Projects

2019-2021	Terrarium	A dynamic computer-aided process planner (CAPP) for biology designed for agile manufacturing of biological products.
2017-2020	DASi	DASi is an automatic DNA cloning plan designer aimed for operating on small budgets by focusing on material re-use and a dead-simple user interface.
2016-2020	Aquarium	An open-source human-in-the-loop laboratory automation system that enables rapid, flexible, and reproducible workflow development and execution.

Selected Publications

2021	Aquarium: open-source laboratory software for design, execution and data management	Oxford University Press: Synthetic Biology	J Vrana, OD Lange, Y Yang, G Newman, A Saleem, A Miller, C Cordray, S Halabiya, M Parks, E Lopez, S Goldberg, B Keller, D Strickland, E Klavins
2021	Implementation of an interactive mobile application to pilot a rapid assay to detect HIV drug resistance mutations in Kenya	AIDS	JD Vrana, N Panpradist, N Higa, D Ko, P Ruth, R Kanthula, JJ Lai, Y Yang, SR Sakr, B Chohan, MH Chung, LM Frenkel, BR Lutz, E Klavins, IA Beck
2017	Digital logic circuits in yeast with CRISPR-dCas9 NOR gates	Nature Communications	MW Gander, JD Vrana, WE Voje, JM Carothers, E Klavins
2014	An optimized optogenetic clustering tool for probing protein interaction and function	Nature communications	A Taslimi, JD Vrana, D Chen, S Borinskaya, BJ Mayer, MJ Kennedy, CL Tucker

Invited Talks

2019	Aquarium: a laboratory operating system for reproducible experimental design and execution	Society for Industrial Microbiology and Biotechnology, Automation session, Washington, D.C.
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