






ARNAV SOOD

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OVERVIEW

I am a researcher and programmer working in computational economics. My projects include codebases for academic papers, open-source software packages, and standalone lectures.

I have extensive experience in differential equations, Julia, and PyTorch. The latter includes logging frameworks, model debugging, execution on cloud instances like AWS DLAMI, and additional tools like PyTorch Lightning.

EMPLOYMENT HISTORY

Freelance Researcher/Programmer, **Varied Clients** Jul. 2020 — Present
Clients Include: UBC, QuantEcon

Predoctoral Researcher, **University of British Columbia** Jun. 2018 — Jun. 2020
Advisor: Prof. Jesse Perla

Lead Developer, **QuantEcon** Jan. 2019 — Present
References: Prof. John Stachurski, Dr. Matt McKay, Dr. Chase Coleman

EDUCATION

University of British Columbia Jun. 2018 — Jun. 2020
Selected Courses (MS and BA.)

New York University Sep. 2014 — May 2018
Bachelor of Arts (Math.)
Minors in Economics, Philosophy

ACADEMIC PUBLICATIONS

Exploiting Symmetry in High-Dimensional Dynamic Programming In-Progress
(with Jesse Perla, Mahdi Kahou, Jesús Fernández-Villaverde)

OTHER PUBLICATIONS

Optimal Stopping and Linear Complementarity QuantEcon Notes
(with Jesse Perla)

Case Study: Recidivism QuantEcon Datascience
(with Paul Schrimpf, Chase Coleman, Spencer Lyon, Jesse Perla)

SOFTWARE

PerlaTonettiWaugh.jl
Codebase for AER paper. Implements a forward-looking differential-algebraic equation (DAE) system in steady state and along transitions.

KnowledgeDiffusionSimulations.jl
Codebase for knowledge diffusion simulations. Implements jump diffusion equations and tracks evolution of aggregate indices.

QuantEcon Julia Lectures

Wrote new lectures, overhauled code, deployed to cloud backends, and supervised RAs.

QuantEcon/Expectations.jl

Uses Gaussian quadrature to take expectations for increased clarity, speed, and accuracy.

QuantEcon/InstantiateFromURL.jl

Allows Julia Jupyter notebooks to run anywhere with proper package versions. Used in QuantEcon lectures.

VSE Syzygy JupyterHub

Worked with Dr. Ian Allison of PIMS to maintain a JupyterHub server for faculty and student use. Deployed from Docker for reproducible setup.

TALKS AND POSTERS

Dependency-Aware Jupyter Notebooks

JuliaCon 2020

Extending Distributions with Expectations.jl

JuliaCon 2020

TEACHING

University of British Columbia

Jun. 2018 — Jun. 2020

Guest Lecturer, ECON 622 (2019) and ECON 628 (2018)

- Prepared and taught occasional lectures to PhD students on software design in Julia.
- Helped students with assignment difficulties.

(MIT, Columbia, Princeton, NYU) Splash!

Sep. 2014 — Jun. 2018

Volunteer Teacher

- Designed and delivered short technical courses at various “Splash!” events for advanced high-school students.
- Content included information economics, analytical statistics, abstract algebra, philosophy of mind, and Play-Doh.