Jonathan Huml

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Education

- **Harvard University** 2021-2023
  Master's in Computational Science and Engineering (M.E.), GPA: 4.0
  Thesis (supervised by Dr. Demba Ba): Preserving Geometric Properties in Neural Latent Space

- **University of North Carolina-Chapel Hill** 2016-2020
  Mathematics (B.A.), Statistics (B.S.), GPA: 3.7
  Thesis (supervised by Dr. Michael Aguilar): Nonparametric Markowitz Optimization

Experience

- **Computation, Representation, and Inference in Signal Processing Group (CRISP)** 2021-Present
  Research Assistant
  - **Research**: Code (especially PyTorch) and theory (proof-writing, etc.) of manifold learning algorithms for compressive sensing and sparse coding problems
  - **Lab Duties**: Presented multiple research papers during group meetings, preparing slides for personal meetings with principal investigator

- **Drug Information Association Adaptive Design Scientific Working Group** 2020-2021
  Research Associate
  - **Research**: Formulate a patient-centered statistical basis for regulatory guidance when designing adaptive clincal trials. Our work culminated in a book chapter (see publications)

- **IQVIA** 2019
  Data Science Intern
  - **Project**: Text analysis program to automate quality report classification
  - **Tasks**: Build an application to allow users to upload documents and route quality assurance reports to the correct departments with machine learning (using `Keras`)

- **Grant Lab at North Carolina State University** 2019-2020
  Undergraduate Researcher
  - **Project**: Build an autonomous wheelchair
  - **Tasks**: In contrast to work at UNC, this work was much more software focused. Used Raspberry Pi and `TensorFlow` framework for neural computer vision tasks

- **UNC Makerspace and Machine Shop** 2017 - 2019
  Builder
  - **Project**: Budgeted, managed a project to build a high performance, low-cost wheelchair
  - **Tasks**: Build hardware systems (motors, boards, etc.), write software for microcontrollers, implement computer vision algorithms to make the wheelchair capable of detecting and avoiding objects

Publications

1. Z. Antonijevic, RA Beckman, **JR Huml**, Y. Liu, C. Mayer, G. McMillan, RS Tang. "Patient Benefits from Innovative Designs in Rare Diseases." *Rare Disease Drug Development*. Springer. 2021.

2. RA Huml, J. Dawson, M. Bailey, N. Nakas, J. Williams, M. Kolochavina, **JR Huml**. "Accelerating Rare Disease Drug Development: Lessons Learned from Muscular Dystrophy Patient Advocacy Groups." *Therapeutic Innovation & Regulatory Science*. 2021.

3. RA Huml, J. Dawson, K. Lipworth, L. Rojas, EJ Warren, C. Manaktala, **JR Huml**. "Use of Big Data to Aid Patient Recruitment for Clinical Trials Involving Biosimilars and Rare Diseases." *Therapeutic Innovation & Regulatory Science*. 2020.

Workshops

1. "Off-Policy Evaluation (OPE) Benchmarking." **JR Huml**, W. Pan, F. Doshi-Velez. *RL at Harvard*. 2022.

Invited Talks

1. "The Ripple Effect." *Kempner Institute for the Study of Artificial and Natural Intelligence Launch Event.* Harvard University. September 2022.

2. "Topography of the Primary Visual Cortex." *Kanwisher Lab.* Massachusetts Institute of Technology. November 2022.

Honors and Awards

- **Harvard IACS Student Scholarship (2022)**: Awarded for top master's thesis proposals
- **NC Summer Scholarship (2020)**: Awarded for mathematics studies and research at UNC-CH
- **Eagle Scout**: Earned the highest Boy Scouts of America rank at age 13, making me the youngest out of the 40 Eagles awarded in Troop 424's history

Skills Summary

- **Languages**: `Python` (Pytorch, any scientific computing package, Django framework), `Matlab`, `HTML/CSS`
- **Sample of courses**: Real Analysis I & II, Differential Geometry, Mathematical Statistics, Numerical Analysis, Neural Computation, Stochastic Modeling