

Joshua Vendrow

jvendrow@ucla.edu – Joshvendrow.com – github.com/jvendrow – linkedin.com/in/joshua-vendrow/

EDUCATION

UCLA

B.S in Computer Science
B.S in Mathematics

SEPTEMBER 2018 - JUNE 2022

GPA: 3.93 / 4

SELECTED COURSEWORK

CS 226: ML for Bioinformatics
CS 181: Formal Languages and Automata
CS 146: Machine Learning
CS 180: Algorithms and Complexity
CS 111: Operating Systems

EE 239AS: Reinforcement Learning
EE 247: Neural Nets and Deep Learning
EE 236A: Linear Programming
EE 133A: Applied Computing
EE 133B: Optimization

Math 171: Stochastic Processes
Math 170A/B: Probability Theory
Math 131A/B: Real Analysis
Math 115A: Linear Algebra

SKILLS

Languages: Python, C++, Bash,
MATLAB, LaTeX

Packages: TensorFlow, PyTorch,
scikit-learn, NumPy

SOFTWARE DEVELOPMENT

fnnls - An implementation of the
fast nonnegative least squares algorithm
[[PyPi](#)] [[Github](#)]

CLASS PROJECTS

EE 239AS: Applying Proximal Policy
Optimization to OpenAI Environments
[[Report](#)] [[Github](#)]

EE 247: Classifying Movement Related
EEG Data using Neural Networks
[[Report](#)] [[Github](#)]

EXPERIENCE

RingCentral — Software Engineering Intern

JUNE 2017 - JULY 2017 | Belmont, CA

Created an automated testing program using JavaScript and Node.js to assess media quality. Measured video quality by comparing pixel-wise square difference with reconstructed images.

RESEARCH

UCLA Applied Math — Funded Research Assistant

AUGUST 2019 - PRESENT | Los Angeles, CA

Advised by Prof. Deanna Needell. Completed projects in computer vision, network science, tensor decomposition, and optimization. Highlights:

- Developed a model for hierarchical tensor decomposition and demonstrated applications to video data and document analysis [1].
- Developed a method for object localization using neural network outputs and matrix factorization with results comparable to state of the art [2].

UCLA Applied Math — NSF REU Program

JUNE 2020 - JULY 2020 | Los Angeles, CA

Research Experience for Undergraduates funded by the National Science Foundation. Took part in two REU Projects:

- *Machine learning approaches to predict synchronization of coupled oscillators on heterogeneous graphs..*
- *Analyzing California Innocence Project Cases using Factorization Methods.*

PUBLICATIONS

[1] J. Vendrow, J. Haddock, D. Needell. "Neural Nonnegative CP Decomposition For Hierarchical Tensor Analysis" Submitted, 2020.

[2] E. Sizikova*, J. Vendrow*, R. Grotheer, J. Haddock, L. Kassab, A. Kryshchenko, T. Merkh, M. Rajapaksha, H. V. Vo, C. Wang, K. Leonard, D. Needell. "Weakly-Supervised Object Localization using Semi Supervised Non-Negative Matrix Factorization." Submitted, 2020.

[3] J. Vendrow, J. Haddock, D. Needell, L. Johnson. "Feature Selection on Lyme Disease Patient Survey Data." arXiv preprint, 2020. [[arXiv](#)]

[4] L. Johnson, M. Shapiro, R. Stricker, J. Vendrow, J. Haddock, D. Needell. "Antibiotic Treatment Response In Persistent Lyme Disease: Why Do Some Patients Improve While Others Do Not?" To appear in *Healthcare*, 2020.

[5] E. Schonfeld, E. Vendrow, J. Vendrow, E. Schonfeld. "On the Relation of Gene Essentiality to Intron Structure: A Computational and Deep Learning Approach." bioRxiv preprint, 2020. [[bioRxiv](#)] [[Github](#)]

*authors contributed equally