JEREMY DON WAYLAND PhD Candidate | Research Scientist

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HONORS AND AWARDS

2020-2022 Awarded a full tuition Fowler Computer Science Fellowship for the CADS program at Chapman University.

Graduated with honors from Berkeley Mathematics by thesis and advanced coursework performance. 2019

2018 Awarded the Mckinley Fellowship by SURF L&S at UC Berkeley for work on observing jet simulations.

PROFESSIONAL EXPERIENCE

Present August 2022

DOCTORAL RESEARCHER, AIDOS Lab, Helmholtz Munich

- > Doctoral Candidate working at the Institute of AI for Health.
 - > Supervisor: Dr. Bastian Rieck.
 - > NeurIPS 2023 Publication: Curvature Filtrations for Graph Generative Model Evaluation

topological and geometric deep learning graph learning and discrete curvature

manifold learning and dimensionality reduction diffusion modeling topological data analysis for healthcare and environmental science

June 2022 July 2021

GRANT FUNDED RESEARCH COMPUTATIONAL SCIENTIST, Children's Hospital of Orange County, Orange CA

- > Predicting onset of sepsis for ED patients using machine learning and artificial intelligence.
- > Spearheading multicenter collaboration between CHOC, UCI, McMaster, and University of Iowa for predictive risk analysis of recurring urinary tract infections (UTIs) among children using machine learning and topological data analysis.

Sepsis Urology Deep Learning Python R Computational Topology Persistent Homology

December 2021

SOFTWARE/RESEARCH DEVELOPER (PART TIME), Encryptek LLC, Lake Forest CA

- January 2020
- > Deploying Radium product-line onto Amazon's Cloud Marketplace via AWS FPGA development.
- > Cryptography and Cryptocurrency market research.
- > Hardware resales.

Amazon Cloud Computing AWS EC2 Development C++ Verilog FPGAs Hardware Blockchain

April 2020 February 2020

Machine Learning, INDEPENDENT CONSULTANT, Lake Forest CA

Madiba LLC: SAP SOFTWARE CONSULTING

- > Incorporated predictive analytics using open source tools in tandem with in house SAP tools to compare performance and flexibility of different machine learning packages.
- > Built TensorFlow models to analyze multivariate irregular time series data.

TensorFlow SAP python jupyter notebooks pandas



Research Experience

December 2019 April 2019

SENIOR HONORS THESIS, advised by Dr. Wesley Holliday, UC Berkeley Department of Mathematics

- > An Investigation into Strategic Voting and the Commutative Monoidal Structure of Elections
- > Characterization of specific uncertainty sets in regards to prevalent strategic voting situations.
- > Novel application of Category to describe electoral structure.

Applied Category Theory | Social Choice Theory | Strategic Voting

December 2018 May 2018

SURF RESEARCH FELLOW, advised by Dr. Richard Anantua, UC Berkeley

- > Built C++/Python pipeline from scratch to generate theoretical images by observing GRMHD simulations using different radiative processes.
- > Galaxies Publication: Emission Modeling in the EHT-ngEHT Age.

General Relativity | Magento-Hydrodynamics | Quantum Field Theory | Radiative Processes | Python | C++

December 2019

UNDERGRADUATE RESEARCHER AND TELESCOPE OPERATOR, Alexei Filippenko Lab UC Berkeley and Lick Observatory

April 2018

- > Gather observational astronomy data using KAIT and Nickel telescopes.
- > Investigate the nature of the expanding universe by analyzing supernovae.
- > 1 MNRAS Publication: Photometry data release of 70 SESNe
- > 3 LOSS Transient Discoveries: 2018-10-02, 2018-09-18, 2018-07-11.

Supernovae Dectection | Image Analysis | Observational Astronomy | Spectra Analysis



EDUCATION

Present

HELENA GRADUATE SCHOOL, Helmholtz Munich and CIT, Technical University of Munich (TUM)

August 2022 > PhD Candidate in Mathematics, School of Computation, Information and Technology (CIT) at TUM.

- > Doctoral Researcher at Helmholtz Munich.
- > Supervisors: Dr. Bastian Rieck and Dr. Ulrich Bauer.

May 2022 September 2020

SCHMID COLLEGE OF SCIENCE AND TECHNOLOGY, Chapman University

> M.S. Computational and Data Sciences

> Relevant Coursework: Mathematical Modeling, Multivariate Statistics and Data Analysis, Data Mining and Machine Learning, Information Theory, Game Theory, Natural Language Processing.

December 2019 August 2015

University of California, Berkeley

- > B.A. Mathematics (Honors) | B.A. Astrophysics | Minor in Logic
- > Relevant Coursework: Quantum Mechanics, Topology, Algebra, Computability, Set Theory, Relativistic Cosmology, Data Science, Machine Learning



TEACHING EXPERIENCE

Chapman University

GRADUATE TEACHING ASSISTANT,

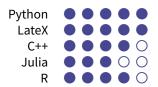
- > Physics Lab Instructor: Undergraduate Mechanics course.(Fall 2021,Spring 2021,2022)
- > Mathematics Instructor: Undergraduate precalculus course. (Fall 2020)

UC Berkeley

UNDERGRADUATE STUDENT INSTRUCTOR, Berkeley

> Astronomy instructor: Introduction to astronomy/astrophysics course taught by Dr. Alex Filippenko.(Fall 2019)

Programming Languages



+ Skills, Interests, & Hobbies

- > Surfing
- > Cello and piano performance
- > Hiking and Backpacking
- > Soccer and Spikeball
- > Music composition and production
- > Skiing and Snowboarding
- > Conversational German

66 References

Dr. Bastian Rieck

Principal Investigator, HELMHOLTZ MUNICH

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Dr. Louis Ehwerhemuepha

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