Chase P. Zimmerman

Computer Engineer, Machine Learning Research Intern.

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Currently

Research Intern at Sandia National Laboratories (Orgs: Quantitative Modeling and Analysis, Extreme Scale Data Science and Analytics)

Research interests

Applied machine learning and artificial intelligence. Quantum algorithms, error correction, and control. Computational physics.

Education

2021 **B.S. (Honors) Computer Engineering and Computer Science**
University of Southern California, magna cum laude
GPA 3.8/4.0 (3.95 Upper Division)

Positions

2018–Present **Machine Learning Research Intern**, Sandia National Laboratories
Advisors: Dr. Constantin Brif, Dr. Eric L. Goodman
Year-round position: 15-20 hours per week continuously since 2018, 40 hours per week (summer).

2017–2018 **Web Development Intern**, Sandia National Laboratories
Mentor: Edward Walsh
Sole developer tasked with updating interactive Geographical Information System (GIS)-based web applications.

Publications

Peer-Reviewed

2021 **Acoustic Signatures in Metal Laser-Powder Bed Fusion.** Bradley Jared, David Saiz, Matthew Roach, Scott Jensen, Maher Salloum, Constantin Brif, Chase Zimmerman, Elaine Rhoades. 2021 Annual International Solid Freeform Fabrication Symposium.

2020 **Development of Novel Approaches to Anomaly Detection and Surety for Safeguards Data.** Natacha Peter-Stein, David Farley, Constantin Brif, Nicholas Pattengale, Chase Zimmerman, Meghan Galiardi, Yifeng Gao, Jessica Lin, Mitchell Negus, Rachel Slaybaugh. Proceedings, 61st Annual Meeting of the Institute of Nuclear Materials Management.

2019 **Packet2Vec: Utilizing Word2Vec for Feature Extraction in Packet Data**. Eric L. Goodman, Chase Zimmerman, Corey Hudson. Proceedings, Machine Learning and Data Mining in Pattern Recognition 15 vol. 1, 161–175.

Research Software

2019 Packet2Vec: Deep-learning based automatic generation of network packet features for intrusion detection.

Talks

2019 Packet2Vec: Utilizing Word2Vec for Feature Extraction in Packet Data MLDM 2019.

Teaching

University of Southern California

2021 **Discrete Methods in Computer Science**
Undergraduate teaching assistant for Dr. Sandra Batista.

2019–2020 **Data Structures and Object Oriented Design**
Undergraduate teaching assistant for Dr. Sandra Batista, Dr. Aaron Cote, and Professor Mark Redekopp.

Awards

2018–2021 USC Viterbi Dean's List, University of Southern California

Skills

Programming Languages Python, C/C++, Rust, Verilog, Matlab, JavaScript, Java, Rust, SQL, Assembly, Latex.

Software PyTorch, Mathematica, various web frameworks, various linux distributions.

Scientific Computing Message Passing Interface (MPI), OpenMP, CUDA, development and deployment of software on large-scale HPC clusters.

Aviation Private Pilot (Airplane Single Engine Land), Instrument Rating (Airplane), Remote Pilot (Small Unmanned Aircraft System), Ground Instructor (Advanced, Instrument).