Dennis J. **Loevlie**

Machine Learning Engineer · Graduate Student Researcher

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"It seemed really amazing that you could write a few lines of code and have it learn to do interesting things." - Andrew Ng

Education

University of Pittsburgh — *Pittsburgh, PA*

Ph.D. in Chemical Engineering — *June. 2021 - PRESENT*

- Organized and presented in several machine learning and software development meetings within the CANELa research group.

Carnegie Mellon University — *Pittsburgh, PA*

M.S. in Chemical Engineering, GPA: 3.91 — *Sep. 2019 - Dec. 2020*

- Competed in several hackathons including the Covestro Hackathon, Hack the Northeast, and the Pitt Challenge.

West Virginia University — *Morgantown, WV*

B.S. in Chemical Engineering, cum laude — *Sep. 2016 - Aug. 2019*

- Graduated with Presidential Honors from the WVU Honors college.

Skills

Machine Learning	Computer Vision, NLP, Time Series Analysis, Deep Learning
Data Science	Feature Engineering, Data Visualization, Database Design
Computational Chemistry	CP2K (Density Functional Theory), Turbomole, Atomic Simulation Environment
Software	Git/GitHub, PyTorch, Tensorflow, spaCy, Sklearn, Django, Beautifulsoup, Selenium, Numpy, Matplotlib, Pandas
Programming Languages	Python, MATLAB, JavaScript, HTML, CSS, SQL, LaTeX
Soft Skills	Leadership, Problem solving, Communication, Writing

Experience

AithELITE — *Pittsburgh, PA*

Lead Data/Software Engineer — *May. 2021 - PRESENT*

- Worked on outreach, and interviewing of prospective software/data engineers.
- Provide expertise in technical decisions made by the company.
- Communicate with the team and develop code to keep the EliteAI working smoothly.

AithELITE — *Pittsburgh, PA*

Data/Software Engineer — *Dec. 2020 - May. 2021*

- Developed web scraping scripts to automate data retrieval and updating.
- Developed and automated the feature engineering.
- Applied machine learning algorithms to generate intelligent predictions from the data.
- Built and maintained relational (MySQL) and graph (Neo4J) databases, hosted on AWS.
- Built the front and backend of the AithELITE EliteAI website with Django, hosted on AWS.

Research Experience

Computer-Aided Nano and Energy Lab (CANELa) — *University of Pittsburgh*

Graduate Student Researcher — *June. 2021 - PRESENT*

- Applying machine/deep learning and quantum/statistical mechanics to better understand structure property relationships for metal nanoparticles and ligand-protected nanoclusters.

The Kitchin Group — *Carnegie Mellon University*

Graduate Student Researcher — *Dec. 2019 - Dec. 2020*

- Recreated image analysis tools in Python (originally in Mathematica) to be interactive, fast, and intuitive.
- Trained and deployed a convolutional neural network classifier to extract valuable information from experimental image data.
- Developed a Python package, nb_search, to efficiently sort through, locate and open Jupyter Notebook files.
- Regressed parameters and used them to cluster different bimetallic catalysts.

Control, Optimization and Design for Energy and Sustainability (CODES) *West Virginia University*

Undergraduate Researcher *Apr. 2017 - Aug. 2019*

- Modeled, optimized and economically evaluated a chemical process in MATLAB — Funded by the National Science Foundation.

Honors & Awards & Activities

University of Pittsburgh

2022 **President**, Chemical Engineering Graduate Student Association (GSA) *Pittsburgh, PA*

Carnegie Mellon University

2020 **3rd Place**, Chemical Engineering Masters Student Assosiation (ChEMSA) Reserach Forum, Poster Competition *Pittsburgh, PA*

2020 **1st Place**, The Pitt Challenge, "Largest Impact on Healthcare Workers" Category *Pittsburgh, PA*

West Virginia University

2019 **1st Place**, AVEVA's National Simulation Competition (Advanced Category) *Morgantown, WV*

2019 **Vice President**, American Institute of Chemical Engineers (WVU Chapter) *Morgantown, WV*

2018 **2nd Place**, Computing and Process Control Division at the National 2018 AIChE Poster Presentations *Morgantown, WV*

2018 **Member**, Omega Chi Epsilon Chemical Engineering Honor Society *Morgantown, WV*

Publications

Resolving Electrocatalytic Imprecision in Atomically Precise Metal Nanoclusters *Pittsburgh, PA*

Current Opinions in Chemical Engineering *Nov. 2021*

- Electrocatalysis applications of ligand-protected nanoclusters.
- Prospective section on current and possible future applications of machine learning in the field.

Relevant Courses

2021 **Natural Language Processing**, Carnegie Mellon University (cross-registration), Graduate *Pittsburgh, PA*

2020 **Introduction to Deep Learning**, Carnegie Mellon University, Graduate *Pittsburgh, PA*

2020 **Introduction to Machine Learning**, Carnegie Mellon University, Graduate *Pittsburgh, PA*

2019 **Linear Optimization (supply chain focused)**, Carnegie Mellon University, Graduate *Pittsburgh, PA*

2017 **Numerical Methods and Optimization**, West Virginia University, Undergraduate *Morgantown, WV*