

# David Oniani

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For my research papers, projects, and full CV, please visit <https://www.davidoniani.com>.

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## Education

08/2017 – 05/2021 **B.A. Computer Science, Mathematics**, [Luther College](#), Decorah, IA.  
**Relevant courses:** Machine Learning, Applied Statistics (I and II), Data Modeling and Querying, Linear Algebra, Advanced Algorithms and Data Structures, Programming Languages, Operating Systems and Architecture, Object-oriented programming with C++, Computational Models, Topology, Real Analysis, Game Theory.

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## Technical Skills

Languages: **Advanced:** Python, Rust, Haskell, Shellscript (POSIX-compliant), HTML, CSS.  
**Proficient:** Java, SQL, Lua, R, Javascript, TypeScript, C/C++, Zsh.  
**Acquainted:** Standard ML, Go, Scheme, C#, Batch, Prolog.

Tools and Libraries: macOS, Linux, kitty, Neovim, Git, Zola, GitHub, GitHub Actions, SQLite, Flask, Elasticsearch, Jupyter, RStudio, PyTorch, TensorFlow, nltk, numpy, scipy, networkx, pandas, scikit-learn, OpenCV, OpenCL.

Other Skills:  $\text{\LaTeX}$ , Markdown, Technical Writing.

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## Work Experience

04/2021 – 01/2022 **Research Engineer**, [DawnLight](#), Palo Alto, CA.

- Architected, trained, and benchmarked highly performant AI model for cough detection.
- Ported an entire bounding box SSD model (key product) to PyTorch Lightning and maintained it.
- Developed and maintained an AI sensing inference runtime (C++ codebase).
- Implemented wrapper APIs for interacting with annotation platforms such as Dataloop.
- Architected and implemented radar waveform estimation CNN model.
- Wrote a set of tools for automating the pipeline of data engineering and model training.
- Implemented Voice Activity Detection (VAD) system using both AI and WebRTC inference.
- Together with the Principal Scientist, wrote a library of signal processing algorithms (libdsp).
- Coordinated efforts with the Firmware Team for low-level systems and hardware support.
- Worked closely with Product Team and the Director of Product to meet customer needs.
- Continuously improved the documentation quality of the ML and Engineering team docs.

02/2020 – 09/2020 **AI Intern**, [Mayo Clinic, Kern Center](#), Rochester, MN.

- First-authored several papers that got accepted at world's major AI and biomedical informatics conferences/journals (ACM-BCB, JAMIA, etc). [Publications and code available on my website](#).
- Created automated COVID-19 screening tool based on decision trees to assist nurses and physicians.
- Built chatbot as extension of GPT-2 model by applying BERT, BioBERT, USE, and tf-idf.
- Utilized node2vec for generating COVID-19 network embeddings and built [co-occurrence network](#).
- Wrote set of programs for extracting information from thousands of EHRs (Electronic Health Record).
- Set up Elasticsearch and indexed millions of documents for use in NLP algorithm.
- Worked directly under [Dr. Feichen Shen](#) and [Dr. Yanshan Wang](#) in the division of [Dr. Hongfang Liu](#).

08/2018 – 12/2020 **Teaching Assistant**, [Luther College](#), Decorah, IA.

Fall 2020 [Computational Models \(CS 260\)](#) with [Dr. Alan K. Zaring](#).

Fall 2019 [Object-Oriented Programming With Java \(CS 252\)](#) with [Dr. Shafqat A. Shad](#).

Fall 2018 [Introduction to Computer Science \(CS 150\)](#) with [Dr. Alan K. Zaring](#).

- In all three cases, helped students with homework assignments and assisted professor during classes.

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## Research Experience

Fall 2019 **Directed research in programming languages with Dr. Alan K. Zaring.**

- Extended CCL language, wrote type-checking rules, made key contributions to type system.

Summer 2019 **Collaborative research on visual persuasion with professor Richard K. Merritt.**

- Trained convolutional neural networks for image recognition using PyTorch.
- Wrote Python scripts for PDF image/text extraction and data cleanup.
- Performed extensive set of both statistical and textual analyses using state-of-the-art algorithms.

Summer 2018 **Collaborative research on unit testing with Dr. Roman Yasinovskyy.**

- Automated feedback generation for C++ programming course.
- Redesigned and significantly improved SQL and relational algebra solution checker.
- Designed testable practice problems for algorithms and data structures course.

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## Honors and Awards

- 2018, 2019 Recipient of Two Luther College Dean's Office Summer Research Awards, [Luther College](#).
- All Semesters Dean's List Recipient, [Luther College](#).
- 2017 Selected Start-up ([UnleashAR](#)), TOP 200, [Wolves Summit](#) (Largest Startup Conference in EU).
- 2016 Gold Medal for Academic Excellence, [Ministry of Education and Science of Georgia](#).
- 2011 – 2016 Five-time Finalist (TOP 20/3,000 back-to-back five times), [National Mathematics Olympiad of Georgia](#).