David Oniani

Visit `https://www.davidoniani.com` *for my papers, projects, and more!*

Education

08/2017 – 05/2021 **B.A. Computer Science, Mathematics, *magna cum laude*,** *Luther College*, Decorah, IA.
Double major in computer science and mathematics. Academic advisor: Dr. Alan K. Zaring.

09/2011 – 07/2016 **High School Diploma, 4.0/4.0 GPA**, *Komarovi Campus School*, Tbilisi, Georgia.
Graduated with the highest honors. Represented the school in various math and physics olympiads.

Work Experience

06/2021 – Present **Research Engineer**, *DawnLight*, Palo Alto, CA.
- Developed and maintained an AI sensing and signal processing system - audio and radar (C++ codebase).
- Architected and trained highly performant AI model for cough detection to be deployed in real-world.
- Implemented Voice Activity Detection (VAD) system using both AI model and WebRTC inference.
- Together with the Principal Scientist, wrote a library of signal processing algorithms.
- Worked closely with Product Team and the Director of Product Management to meet customer needs.
- Continuously improved the documentation quality for the ML and Engineering team docs.

04/2021 – 05/2021 **ML Engineering Intern**, *DawnLight*, Palo Alto, CA.
- Trained and evaluated CNN and Depthwise CNN based deep learning models.
- Developed signal processing algorithms for audio detection.
- Redesigned and improved performance of feature extractor generated using MATLAB-to-C++ transpiler.

02/2020 – 09/2020 **Research Intern**, *Mayo Clinic, Kern Center*, Rochester, MN.
- Major-authored several papers that got accepted at world's major AI and biomedical informatics conferences and journals (ACM-BCB, JAMIA, etc). Publications 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.
- Drafted several papers and reports, reviewed over 15 state-of-the-art AI/NLP papers.
- Worked directly under Dr. Feichen Shen and Dr. Yanshan Wang in the division of Dr. Hongfang Liu.

08/2018 – 01/2020 **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.
- Held help hours and assisted students with homework assignments.
- Attended all classes and answered questions during the labs.

06/2018 – 12/2018 **Web Programmer**, *Luther College, ITS - Software Development*, Decorah, IA.
- Contributed to the brand new Norse Hub web system which has successfully replaced my.luther.edu.
- Communicated with the team, wrote reports, and attended weekly SCRUM meetings.
- Conducted performance & load testing using JMeter and presented the results.
- Created a data visualization tool utilizing JavaScript DOM.
- Migrated from the Microsoft to the Linux server and refactored the Python code.

03/2017 – 07/2017 **Co-Founder and CEO**, *Warbler*, Tbilisi, Georgia.
- Spearheaded the team of young and enthusiastic software developers.
- Processed five-year data (180k+ rows) of UNE (Unified National Exams of Georgia).
- Designed the logo; built the pitch, presentation, and the WordPress-based website for the start-up.
- Created a social media chatbot using Chatfuel API and set up Zoho mailing system.

11/2016 – 09/2017 **Freelance Graphic Designer**, *Behance (not affiliated)*.
- Designed logos and posters for various companies in the local and the global market.
- Instructed and taught the basics of design to several aspiring graphic designers.

10/2016 – 06/2017 **Sales Representative and Marketing Coordinator**, *Insta LLC*, Tbilisi, Georgia.

- Partook in the complete rebuild and redesign of sales and marketing departments.
- Contributed to the CRM, was responsible for data gathering, filtering, and entry.
- Managed social media, responsible for targeted campaigns, copywriting, and image-editing.
- Cold-called and contacted clients to build and maintain long-term relationships.
- Attended a number of staff meetings and new product/partner presentations.

Research Experience

Fall 2019 **Directed research in programming languages with Dr. Alan K. Zaring.**
- Redesigned and made a few significant contributions to the type system.
- Introduced the notion of container types to the language.
- Designed relational operators for container types.

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 an extensive set of both statistical and textual/NLP 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 the algorithms and data structures course.

Volunteer Experience

2016	Transparency International Georgia	*Observed Georgian Parliamentary Elections*
2016	Khan Academy	*Subtitled Georgian and Russian videos*

Activities and Memberships

2020 - Present	Member, Pi Mu Epsilon (Math Honor Society)
2017 - Present	Member, Association for Computing Machinery (ACM)

Honors and Awards

2017 – 2020	Multiple Competitive Scholarships, Luther College
2018, 2019	Recipient of 2 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
2014	7th Place (TOP 10) National Mathematics Olympiad of Georgia
2011 – 2016	Five-time Finalist (TOP 30 out of over 3,000 participants), National Mathematics Olympiad of Georgia.
2014	IMO & IPhO Nominee, Ministry of Education and Science of Georgia
2011 – 2016	Won a number of various mathematical olympiads, Varied

Publications and Other Manuscripts

2020	A Qualitative Evaluation of Language Models on Automatic Question-Answering for COVID-19 (presented at ACM-BCB)
2020	Constructing Co-occurrence Network Embeddings to Assist Association Extraction for COVID-19 and Other Coronavirus Infectious Diseases (published at JAMIA)
2020	Setting Up Python Development Environment for Use in a Small Classroom (presented at MICS)
2019	Textual and Statistical Analysis of Russian IRA Facebook Advertisements
2019	Type Inference Rules For Container Types in CCL
2019	The Topology of Robotic Configuration and Motion Planning
2018	Unit testing frameworks in the classroom (applied research report)
2018	Photography as a socially influential medium in Jennifer Baichwal's *Manufactured Landscapes*

Language Proficiency

- English, Native
- Russian, Native
- Mingrelian, Native
- Georgian, Native
- Japanese, Elementary

Technical Skills

Languages:	**Advanced**: Python, Haskell, Shellscript (POSIX-compliant), HTML, CSS. **Proficient**: R, Rust, Java, SQL, Javascript, TypeScript, C/C++, Zsh. **Acquainted**: Standard ML, Lua, Scheme, VBA, C#, Batch, Prolog.
Tools and Libraries:	macOS, Linux, kitty, Neovim, Git, Zola, GitHub, Travis CI, SQLite, Flask, Elasticsearch, Jupyter, RStudio, PyTorch, TensorFlow, nltk, numpy, scipy, networkx, pandas, scikit-learn, OpenCV, OpenCL.
Other Skills:	LaTeX, Markdown, Technical Writing.

Other Courses and Certificates

2020   GCP for Clinical Trials with Investigational Drugs and Medical Devices (U.S. FDA Focus), CITI Program, A Division of BRANY

2019   Machine Learning & AI: Advanced Decision Trees, LinkedIn Learning

2019   NLP with Python for Machine Learning Essential Training, Linkedin Learning

2018   Machine Learning Crash Course, Google

2017   Think About It, Campus Clarity

2017   How to Rock Social Media, LinkedIn Learning

2016   South Caucasus Leadership Forum Participant, GSFL, Friedrich Naumann Foundation

2016   Parliamentary Elections Observation Mission Training, Transparency International Georgia