Michael Ilie

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TECHNICAL SKILLS

Programming Languages: Python, C/++, Swift, Julia, JavaScript, F#, Verilog
Libraries and Tools: PyTorch, Sklearn, Pandas, Numpy, ADRF, VRDC, HuggingFace Accelerate and PEFT, GMAT/STK, Spark, Databricks
Hardware/Embedded platforms: Alvium/Allied Vision, Lattice Diamond FPGAs, Intel Quark FPGAs, AMD Artix-7 FPGAs (experience with ddr3 and PCIe gen2), Thor Labs optical equipment, rp2040, AVR, SAMD21, STM32f4
Compliance/Regulatory: SBIR/STTR Grant Writing and Budgeting, HIPAA, FDA Cybersecurity, Experience with QMS, ISO, UL for electromagnetic interference

WORK EXPERIENCE

Lead AI Researcher
Sociable AI, College Park, Maryland *May 2024 - Present*

- Led internal research efforts for benchmarking agentic LLM systems, advancing the company's AI capabilities.
- Optimized LLM agents to replicate social media influencer stylometry, enhancing the authenticity of AI-generated content.
- Spearheaded the AI Roadmap development, collaborating with the product team to align design decisions with technical strengths and feasibility.
- Patched bugs and secured LLM prompt chains in production, ensuring robust and reliable AI performance.

Government Contracting Specialist
Learn Prompting, College Park, Maryland *April 2024 - Present*

- Advised on strategies to market Learn Prompting's generative AI courses to DOD, DHS, and other federal agencies, expanding the company's reach into the government sector.
- Established preliminary infrastructure to enable Learn Prompting to conduct business with the US Government, paving the way for future federal contracts and partnerships.

Chief AI Officer
Careplots Inc., Rockville, Maryland *September 2023 - Present*

- Spearheaded AI prototypes and large-scale RWD analysis projects for healthcare policy, outcomes research, and care disparities; contributed to RFPs for NSF, USDA, and SAMHSA.
- Developed scalable Python/SQL solutions for CMS VRDC, analyzing data of 150M beneficiaries; optimized ADRF data pipeline, enhancing government data democratization efforts.
- Designed AI solutions linking government (USDA) and private (Circana IRI) data using open-source LLMs; improved probabilistic matching with embedded text models and ML methods.

Senior R&D Engineer, Grant Writer
Lumo Imaging, Rockville, Maryland *January 2023 - March 2024*

- Led the effort in writing our phase II STTR grant from the NSF. Designed a plan to increase the efficacy of conventional dermatology deep-learning models using synthetic data and generative AI. Wrote most of the technical proposal, and half of the commercialization plan. In March of 2024, we won the grant and were awarded $1,000,000 USD.
- Lead engineer on Flacara Handheld device project. Created novel inverse kinematics solution to map lesions on the human body. Raised approx. $40,000 USD for this project through NIH sales and grants from University of Malryland Baltimore County. Hired and led team of 4.
- Conducted med-tech R&D, helped set up 3D printing infrastructure, hiring, pitch deck drafting, preliminary HIPAA compliance, simulation optimization, project manager for team of 10 people.

Embedded Engineer, Project Manager
Cision Vision, Palo Alto, California *May 2022 - October 2022*

- Worked on power systems and user interface development on the In Vision device, used for detecting lymph nodes in biopsy samples.
- Conducted R&D on novel laser raster scanning device for helping find tracking clips in breast cancer biopsies.
- Led FDA cybersecurity compliance efforts, also worked on preparing for QMS audit, and helped with EMI compliance.
- Assisted with project managing a team of 15 people. Conducted behavioral and technical interviews for over 40 candidates and hired 2 people.

Mechatronics Intern
PSYONIC, Urbana-Champaign, Illinois *June 2021 - July 2021*

- Developed an application to interface with the Bionic Ability Hand via Bluetooth Low Energy, enhancing device connectivity and control.
- Converted MATLAB scripts to Python, improving code maintainability and portability for the prosthetic hand control system.
- Assisted with various mechatronics tasks and 3D printing projects, contributing to the development and prototyping of advanced prosthetic devices.

Lead Software Engineer, Grant Writer
Medapptic LLC, Rockville, Maryland *May 2020 - May 2021*

- Lead software engineer for the QwickMeds medical device, with a focus on FHIR and Hl7v2 EMR integration.
- Helped win and conduct research on an NSF Phase I grant, and especially worked on budget writing, review, and report writing.
- Helped raise funds from TEDCO, a Maryland VC firm.
- Conducted research on FHIR interoperability standards between Cerner and EPIC EMR systems.

Optical Payload Team Lead
Blair3sat, Silver Spring, Maryland *October 2019 - May 2022*

- Led a high school student team in designing one of two payloads for a cubesat mission studying RF signal interactions in the Ionosphere.
- Programmed optical payload simulations using C, Python, Fortran, and GLOW, enhancing mission planning and data analysis capabilities.
- Contributed to NASA CSLI grant applications and authored posters for SmallSat and SPIE conferences.
- Led integration efforts and embedded engineering tasks, ensuring seamless payload functionality within the cubesat system.
- Led and conducted meetings between industry subject matter experts for the validation of our design.

PUBLICATIONS

- The Prompt Report: A Systematic Survey of Prompting Techniques second author, equal contribution – I led a team of 20+ people from OpenAI, Stanford, Google, CMU, and UMD in conducting this survey. I was responsible for writing a majority of the codebase and running and validating the experiments.
- SIRVLAS: A CubeSat instrument suite for enhanced ionospheric charge density measurements – I designed and ran atmospheric simulation for remote sensing instrumentation validation for a cubesat.

EXTRACURRICULAR ACTIVITIES

- **Startup Shell** fall 2023 batch *October 2023 - Present*
  Startup Incubator where UMD entrepreneurs collaborate and work together.
- **PSSG research** under Dr. Abhinav Bhatele, LLMs for HPC *February 2024 - Present*
  Conducting research on LLMs in High Performance Computing (HPC) applications. Past research includes agentic LLM systems to translate HPC codebases from one programing model to another. Current research focuses on Reinforcement Learning augmentation for LLMs to generate higher quality code.

AWARDS

- **UMD BitCamp 1st Place MoonShot Track** *May 2024*
- **Red Dot Industrial Design Award** for InVision medical device (Cision Vision). *December 2023*
- **Microsoft Imagine Cup World Finalist** *May 2022*
- **Hack Club Assemble Best Game** *August 2022*

EDUCATION & CERTIFICATION

University of Maryland **College Park, MD, USA**
Computer Science, and Interdisciplinary Business Honors *August 2023 - May 2027*

Montgomery Blair STEM Magnet High School **Silver Spring, MD, USA**
Graduated a semester early to work at Lumo Imaging *August 2019 - January 2023*

Certified Forklift Operator
Class 1-7 Certified