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Mihai Avram

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Objective (Innovation Oriented CTO / Full-Stack Developer)

Leading the creation of human-centered technology that drives positive impact. Experienced in Web, Mobile, and Full-Stack Development, DevOps, Machine Learning, and Generative AI, with a focus on delivering scalable, innovative solutions to complex socio-technical challenges.

Relevant Education (Distinguished Master's Thesis Award Recipient)

Indiana University in Bloomington, IN
Master of Science in Computer Science

Purdue University in West Lafayette, IN
Bachelor of Science in Mathematics
Minors in Statistics, Sociology, and Management

Software Engineering Experience (Full Stack)

Cingo/iWell: Full-Stack Developer For an AI-Based Mental Health App   **2025**

- Built full-stack iOS app with Vue.js/Ionic/TypeScript front-end and Django/Postgres back-end for HIPAA-compliant digital phenotyping
- Designed ETL/ELT pipelines from app/device sensors and applied Random Forest models to analyze mobile sensor data and predict emotional state patterns
- Created DevOps pipeline and deployed AWS infrastructure (S3, RDS, IAM) in production following HIPAA best practices

Elebase: fCTO of startup/platform that enables CMS for Digital Maps (GIS)   **Spring 2024 – 2025**

- Ehancing user experience and user design on the front-end with Vue.js for product-led growth
- Planning the long-term architecture of mapping features and integrations via Geojson/Tileset plugins
- Helped expand and support the backend services with PHP, Postgres, Redis, and Heroku

ghSmart: Software Architect @ Management Consulting Company (ghsmart.com)   **Spring 2020 – 2024**

- Planning and executing on the architecture of a large-scale enterprise digital product
- Led and mentored a team of 2 developers, fostering a collaborative environment to drive project success and professional growth
- Leading the development effort for text extraction, ETL, Data Mining, and Natural Language Processing
- Following DevOps and Agile best practices such as weekly timelines, CI/CD, documentation, and testing protocols
- Creating text extraction pipelines, text analytics, and visualizations using Python text libraries, NLP, SpaCy, and Elasticsearch

GamePass Picker: Founder / CTO of a media service similar to Rotten Tomatoes, for gaming (gamepasspicker.com)   **Spring 2022 – Current**

- Creating automated Node/Puppeteer pipelines that gathers and combines game data from different resources
- Developing AI-Based recommendation systems based on users' gaming habits and game ratings
- Updating a Vue.js front-end/Django back-end app that serves as a responsive gaming platform for users
- Talking to users and iterating in order to improve KPIs / Administering a weekly newsletter via Mailchimp

Welsome: A self-improvement and social impact platform to help us achieve our goals (welsome.org)   **Spring 2019 – 2021**

- Sole founder and creator - development, DevOps, and user interviews/marketing/finances/planning
- Taking part in the idea to product life-cycle such as – market research, ideation, prototyping, and creation of the product
- Created the back-end in Django/PostgreSQL and front-end in Vue.js and Apache Cordova, all hosted on AWS
- Polishing a progressive mobile app using Quasar and Cordova

Fakey: A social media news literacy game (fakey.iuni.iu.edu)   **Fall 2017 – 2020**

- Lead developer and creator of Fakey (Web, Android, iOS)
- Usage is roughly 10 users interacting with 100 sessions per day, round 10,000 unique users, overed by various news sources
- Created Fakey using Vue.js, Django, MySQL, and Apache Cordova
- Took part in the research and ideation process for Fakey using fake-news and social computing findings and scientific publications
- Iterated and improved Fakey features by surveying stakeholders and presenting the project at various meetings and conferences
- Took part in various interviews and speaking events including with Poynter and EU DisinfoLab

Security Startup: A web automation and security platform   **Fall 2019 – Spring 2020**

- Creating automation tools using tools like Node.js, and Puppeteer
- Leading the development effort, upholding DevOps best practices, and mentoring junior devs
- Brainstorming, researching, and taking part of the ideation effort to help with planning the project
- Taking part in research and development, reading relevant research literature, and assisting with grant applications

OpenKasm: An AI based social media monitoring and reporting tool   **Fall 2019 – Current**

- Use data-mining techniques to obtain social media data
- Learn, interpret and implement state of the art machine learning methods for bot detection, all done in Python and R

4Castersports: Commission-free sports betting (4castersports.com)   **Spring 2019 – Fall 2019**

- Dev lead and freelancer of a small team in a start-up environment using agile development and sprints
- Building Node.js/MongoDB/Vue.js micro-services to integrate decentralized betting using the block-chain
- Taking part in the DevOps life-cycle of the product using the Google Cloud Platform, Mongo Atlas, CI/CD through GitLab, organization via Trello, and documentation via Notion

Hoaxy: Social media news/fake-news chatter analysis/visualization tool (hoaxy.iuni.iu.edu)   **Spring 2017 – Spring 2018**

- Created Hoaxy news board and search functionality on the landing page using Python APIs and CRON jobs to automate recent news scraping to the site
- Took part in D3.js/Sigma.js optimizations in order to enable the visualization to render quicker
- Innovated new features and discussed bugs in weekly meetings to expedite the development process
- Created various features such as tooltips, animation timelines, and bot cache system using Bootstrap, JavaScript, HTML5, CSS3, and Sigma.js, and D3.js

ECHO Global Logistics: Job board creation   **Spring 2016**

- Created a job board for ECHO Global Logistics using JavaScript and REST APIs

FHLBC Website: Proprietary banking application   **Summer 2014 – Fall 2015**

- Created and maintained the FHLBC website and its processes using C#, SQL Server, and Octopus Deploy
- Took part in fixing loan processing bugs, UI bugs, and creating triggers/stored procedures to extend bank processing functionality

Research Experience

University of Illinois: Urbana-Champaign, IL   **Summer 2018 – Current**

- Published *"Exposure to Social Engagement Metrics Increases Vulnerability to Misinformation"* in (The Harvard Kennedy School Misinformation Review, 2020 Issue)
- Published *"Effectiveness of the Execution and Prevention of Metric-Based Adversarial Attacks on Social Network Data"* in the (Journal of Multidisciplinary Digital Publishing Institute 2020)
- Published *"Adversarial perturbations to manipulate the perception of power and influence in networks"* in (ASONAM 2019)

- Developed methodology and applied experimentation with Adversarial Learning on Social Networks
- Created a Python framework to enable simulations on any networks using any desired graphs, node positions, budgets, functions, and evaluation metrics/goals
- Mining for patterns in how people interact with misinformation on social media feeds using Fakey
- Assisted with writing grants and submitting preliminary work to conferences
- Crafted a rough draft of a publication for our work on patterns in how people interact with misinformation on social media feeds using Fakey
- Crafted a rough draft of a publication for our work on Adversarial Learning in Graphs
- Presented poster titled "Towards an open-source framework to assess the robustness of network structures and metrics to adversarial attacks and ascertain adversarial attack patterns" at the iSchool Corporate Showcase 2019 in Champaign, IL
- Presented poster titled "Adversarial perturbations for identifying strategies toward biasing the perceptions of power and influence in social networks" at the iSchool Research Showcase 2018 in Champaign, IL

Indiana University: Bloomington, IN   **Fall 2016 – Summer 2018**

- Completed my Master's Thesis funded by the Democracy Fund which involves the study and prevention of misinformation in social media by creating, using, and improving tools such as Hoaxy, OSoMe, Botometer, and a media literacy game called Fakey.
- Published *"HarpLDA+: Optimizing Latent Dirichlet Allocation for Parallel Efficiency"* (IEEE Big Data 2017) and *"Finding and counting tree-like subgraphs using MapReduce"* (IEEE TMSCS 2017) under professor Judy Qiu in the summer of 2017
- Created a Machine Learning MOOC under Professor Ying Ding for the IU *Data Science On-Ramp Program* in the summer of 2017
- Fact Checking: Awarded 5th place in the 2017 WSDM Cup and published the paper *"RelSifter: Scoring Triples from Type-like Relations"*
- Assisted in research discussions, manual data annotation, and building algorithm comparison as well as feature extraction tools using Python
- Presented relevant research to peers and collaborators
- Served as a Web Administrator for the IU Complex Networks and Systems WordPress *website*

University of Michigan: Ann Arbor, Michigan   **Summer 2013**

- Learned and implemented the Radiative Transport Equation (RTE) in three dimensions
- Created a Java applet to extrapolate the intensity of light in random media using the RTE
- Wrote a report in LaTeX explaining the RTE theory and how to use the Java applet

Discovery Park Undergraduate Research Internship Program:
Purdue University, West Lafayette, IN   **Spring 2013**

- Analyzed journal articles, cleaned and mined data using Python, and ran analysis in R to discern our research results – i.e. Civilians killed due to IDEs
- Published a Journal Article: *"Civilian Deaths and the Iraq War: Who is Responsible?"* in the Journal of Purdue Undergraduate Research

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Industry Experience

Avanade Consulting: Chicago, IL   **2014 – 2016**

- Took part in full application life-cycle (Requirements gathering, Application Development, Test Development Change, Deployment of Change, Support previous Deployments) as part of the Production Support team
- Learned an array of Microsoft technologies applicable to back-end data storage and data manipulation (SQL Server), middleware logic for large-scale Mortgage Banking applications (C#, PowerShell, Automation), front-end UI experience (HTML, JavaScript, CSS), as well as version control using Visual Studio Team Foundation Server
- Presented various technologies and projects to business users, communicated closely with clients, and assisted in "Live" Production critical failures bi-monthly

- Acquired a general idea of the full-stack development toolkit: Web Design, Application Design, UI/UX, Testing, Version Control, Analytics, Big Data, Reporting, Machine Learning, Data Mining, and Cloud

Leadership Experience

Dev Lead for ghSmart: Information Extraction, Natural Language Processing, and NER   **Spring 2020 - Current**

Founder/Dev Lead for Welsome: A well being and social impact scheduling system   **Spring 2019 - Current**

Dev lead at a Security Startup: A privacy and security startup focused on web automation   **Fall 2019 – Spring 2020**

Dev lead at 4castersports: A commission-free sports betting startup   **Spring 2019 – Fall 2019**

Indiana University: As a student/researcher in Bloomington, IN   **Fall 2016 – Spring 2018**

- Assisted undergraduates and fellow researchers with various problems regarding system/software configurations, problem formulations, research methods, and programming tips
- Coordinated and led/co-led meetings with regards to research projects or class projects

Avande Consulting: As a senior solutions developer in Chicago, IL   **2014 - 2016**

- Led and co-led meetings regarding production support tasks essentially co-ordinating and assigning tasks to offshore team members
- Briefly mentored incoming analysts with system/software configurations and programming tips

EPICS: (Engineering Projects in Community Service) at Purdue University, West Lafayette, IN   **2010 - 2013**

- Presented product prototype to stakeholders and collaborators, taking part in the decision-making process
- Coordinated meetings to discuss progress, issues, and goals. Constructed decision matrices, tested prototypes, and delivered the final project to the client

Teaching Experience

University of Illinois: As a Ph.D. student in Champaign, IL   **Summer 2018**

- Served as a TA for a Network Analysis class for the 2018 Global Institute teaching program

Volunteer Experience

Code for America, Pro-Truth Pledge and Movement, Zooniverse, Outreach for NetSci 2017 conference, Aspire Foundation, Misericordia Heart of Mercy, Greater Chicago Food Repository, Habitat for Humanity, Run For Cause

Relevant Skills

Skill	Rating	Skill	Rating
JavaScript:	★★★★☆	Git:	★★★★☆
HTML5:	★★★★☆	Python:	★★★★☆
CSS3:	★★★★☆	SQL:	★★★★☆
WordPress:	★★★☆☆	MongoDB:	★★★★☆
Bootstrap:	★★★★☆	Linux OS/Linux Bash:	★★★★☆
React:	★★★☆☆	PHP:	★★★☆☆
Vue.js:	★★★★☆	Django:	★★★☆☆
Apache Cordova:	★★★☆☆	Node.js:	★★★★☆
Docker:	★★★☆☆	AWS:	★★★★☆
D3.js:	★★★☆☆	npm:	★★★☆☆
Machine Learning:	★★★★☆	Data Mining:	★★★★☆
Network Science:	★★★★☆	LaTeX:	★★★★☆
NLP:	★★★☆☆	Deep Learning:	★★★☆☆
Hadoop:	★★★☆☆	Cloud/Distributed Computing:	★★★☆☆

Algorithms:	★★★☆☆	C/C++:	★★★☆☆
R:	★★★☆☆	Java:	★★★☆☆
Microsoft Office:	★★★★☆	Google Cloud Platform:	★★★★☆
ES6:	★★★★☆	Elasticsearch:	★★★★☆