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| Contact Information |  jacob[dot]dineen[at]asu[dot]edu |  (480)603-6994 |  jacobdineen.com |
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| Research Interests | My research focuses on Artificial Intelligence, particularly on Large Language Models (LLMs). I am also interested in eXplainable Artificial Intelligence (XAI), Graph Machine Learning, and Game Theory. My work aims to drive value by developing practical AI solutions that address real-world challenges and enhance decision-making processes. |
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| Education | Arizona State University Ph.D. in Artificial Intelligence (GPA: 4.00/4.00) Advisor: Prof. Ben Zhou | <i>Present</i> |
| | University of Virginia M.Sc. in Computer Science (GPA: 3.96/4.00) Advisor: Prof. Madhav Marathe | <i>2019-2021</i> |
| | Syracuse University M.S. in Data Science (GPA: 4.00/4.00) | <i>2017-2018</i> |
| | Grand Canyon University B.S. Finance and Economics (GPA: 3.65/4.00) | <i>2012-2015</i> |

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| Research | Research Assistant at Arizona State University <ul style="list-style-type: none">Artificial Intelligence ResearchCybersecurity Research | <i>Present</i> |
| | Applied Research Intern at Capital One <ul style="list-style-type: none">Explored aspects of organization dynamics under a reinforcement learning setting. Implemented an agent-based modeling system to study managerial incentive structures on experimental program optimization. | <i>2020-2021</i> |
| | Research Assistant at the University of Virginia <ul style="list-style-type: none">Worked in the Biocomplexity Institute and Initiative labs with a focus on graph dynamic systems and cooperative game theory/behavior modeling, under the supervision of Professor Madhav Marathe. | <i>2019-2020</i> |

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| Publications | Jacob Dineen, Donald Kridel, David Castillo, and Dan Dolk “Unified Explanations in Machine Learning Models: A Perturbation Approach”. In Proceedings of the 56th Hawaii International Conference on System Sciences. | HICSS 2023 |
| | Dineen J., Haque A.S.M.AU., Bielskas M. (2021) Formal Methods for an Iterated Volunteer’s Dilemma. In: Thomson R., Hussain M.N., Dancy C., Pyke A. (eds) Social, Cultural, and Behavioral Modeling. SBP-BRiMS 2021. | SBP-BRiMS 2021 |
| | Dineen J., Haque A.S.M.AU., Bielskas M. (2021) Reinforcement Learning for Data Poisoning on Graph Neural Networks. In: Thomson R., Hussain M.N., Dancy C., Pyke A. (eds) Social, Cultural, and Behavioral Modeling. SBP-BRiMS 2021. | SBP-BRiMS 2021 |
| | Dolk, D., Kridel, D., Dineen, J., & Castillo, D. (2020, January). Model Interpretation and Explainability towards Creating Transparency in Prediction Models. In Proceedings of the 53rd | HICSS 2020 |

Professional Experience

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| Machine Learning Engineer @ Spring Oaks Capital | | '22-'23 |
| <ul style="list-style-type: none"> Developed and deployed scalable ETL and modeling pipelines using Airflow and Kubernetes for the SOC's automated text/call efforts and offer generation, incorporating ranking recommendations and constrained optimization solutions to scheduling problems. Implemented robust CI/CD processes including tests, automated builds, and deployments utilizing AWS ECR, CodeBuild, and GitHub Actions, ensuring seamless and efficient workflow. Assisted wrt to cloud infrastructure for the core technology stack, from containerization to resource provisioning and development environments, optimizing performance and scalability. Prepared and maintained comprehensive Sigma dashboards and Streamlit apps to monitor online performance metrics, providing key stakeholders with actionable insights and facilitating data-driven decision-making. | | |
| Data Scientist @ Capital One | | '21-'22 |
| <ul style="list-style-type: none"> Engineered and productionalized critical updates to the core codebase, impacting 30MM+ users, through advanced feature engineering, robust data pipelines, unit tests, and custom model architectures. Spearheaded distributed training/scoring jobs on EKS clusters, leading to unprecedented value generation. Developed sequential recommendation POCs utilizing PyTorch, Huggingface, and Nvidia's Merlin/Transformers4Rec. These innovations were showcased at the Nvidia GTC Fall Summit 2022, highlighting cutting-edge advancements in recommendation systems. Co-led and designed a bi-weekly lecture series on Deep Learning and Neural Recommendation, fostering knowledge sharing and upskilling within the team. | | |
| Ph.D. Internships @ Capital One (2X Data Science, 1X Applied Research) | | '20-'21 |
| <ul style="list-style-type: none"> Researched and implemented state-of-the-art neural recommendation solutions for adtech challenges, significantly improving ad targeting and engagement. Developed scalable and extensible data pipelines in PySpark, leveraging novel data sources to enhance model performance and insights. Provided strategic insights and recommendations for integrating neural solutions into production environments, extending the impact of summer projects. Conducted advanced research in agent-based modeling and reinforcement learning, contributing to the Center for Machine Learning (C4ML). | | |
| Analyst and Business Intelligence @ Real World Marketing | | '16-'19 |
| <ul style="list-style-type: none"> Designed and automated interactive dashboards and ad hoc reports, driving data-driven decision-making and improving operational efficiency. Integrated and analyzed diverse data sources, using statistical techniques to uncover actionable insights and optimize marketing strategies. Conducted multivariate analysis and A/B testing, leading to significant improvements in site conversion rates and marketing ROI. | | |
| Data Scientist @ Buffalo Check LLC | | '15-'19 |
| <ul style="list-style-type: none"> Cofounded and scaled a successful LLC, delivering innovative advertising solutions to the US military and generating over \$2M in revenue. Performed detailed quantitative analysis on user engagement, enhancing advertising effectiveness and client satisfaction. | | |
| Optimization Analyst @ Voltari | | '12-'15 |
| <ul style="list-style-type: none"> Conducted analysis centered around first and second-click ad performance. Analysis concerning pricing strategy/optimization. Managed point of interest (POI) database via SQL. | | |

Grad Courses

Computer Systems Security, Software Security, Planning and Learning Methods in AI, Algorithms & Research/Dissertation Hours

ASU

Algorithms, Machine Learning, Computer Vision, Formal Methods, Reinforcement Learning,
Graph Mining, Learning Theory (Game Theory), Cloud Computing & Research Hours

UVa

Data Analysis and Decision Making, Business Analytics, Financial Analytics, Marketing
Analytics, Advanced Information Systems, Data Science, Data Warehousing, Text Mining,
Scripting for Data Analysis, and Information Policy

Syracuse

Skills

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| OS | Linux (Ubuntu), MacOS, Windows |
| Language | Python, Rust, x86-64, Java, JS, R, C, C++, PRISM, Bash, Vue, React |
| Database | MySQL, SQLite, NoSQL, MongoDB, Snowflake, Redshift, Postgres, Redis |
| Markup | LaTeX, HTML |
| ML Library | PyTorch, Keras, Tensorflow, Jax, Numpy, Pandas, Polars, Dask, NLTK, Networkx, SparkML, SnowparkML, DeepGraphLibrary, HuggingFace, Botorch, Torch Geometric, Burn |
| Other | Weka, Mallet, Conda/Mamba, VSCode, Git, Databricks, Docker, Snowflake Snowpark, Airflow, AWS (ECR/S3/EKS/Codebuild), Kubernetes, Helm, Sigma, Sagemaker, OR-Tools, Click, Streamlit |

Misc.

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| Expert AI Trainer | pareto.ai ('24-present) |
| Tutor/TA | CGCC Calculus and Linear Algebra Tutor ('19) ASU CSE365 (pwncollege) TA |
| Conference Reviewer | HICSS ('21 & '22), SBP-BRiMS '21 |
| Cyber Security (Certificate) | Pwn.college green belt (user: jdin) ('22). Reverse engineering, binary exploitation, dynamic and static analysis |

References

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|-----------------|---|
| Paul Hurlocker | CTO @ Spring Oaks Capital LLC |
| David Der | Sr. Engineering Mngr. @ Spring Oaks Capital LLC |
| David Weiss | Sr. Engineering Mngr. @ Spring Oaks Capital LLC |
| Austin Cathon | Sr. AI & DS Mngr. @ Spring Oaks Capital LLC |
| Scott Golder | Sr. Director Data Science @ Capital One |
| Kalaland Mishra | Sr. Mngr. Data Science @ Capital One |
| Kerry Levenberg | Mngr. Data Science @ Capital One |
| Hailey Nguyen | Machine Learning Engineer @ Meta |
| David Castillo | CTO @ Voltari |

Don Kridel

DS/AI Consultant @ Voltari