

# Alexander DeLise

Email: [alex.r.delise@gmail.com](mailto:alex.r.delise@gmail.com)  
Google Scholar: [Alexander DeLise](#)  
Personal Website: [alexdelise.com](http://alexdelise.com)  
LinkedIn: [alexanderdelise](#)  
GitHub: [github.com/alexdelise](https://github.com/alexdelise)

## Education

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**Florida State University** Tallahassee, FL  
B.S. Computational Science with Honors, GPA: 4.00/4.00 2023–2027

- Thesis: Active Learning for Conditional Generative Compressed Sensing
- Advised by Dr. Nick Dexter through the Honors in the Major Program
- Selected Coursework: Computational Probabilistic Modeling, High Performance Computing, Monte Carlo Methods, Data Science Meets Health Science

**Florida State University** Tallahassee, FL  
B.S. Applied and Computational Mathematics, GPA: 4.00/4.00 2023–2027

- Activities: Presidential Scholars Program, Undergraduate Research Opportunity Program, *President*, Pi Mu Epsilon Mathematics Honor Society, Society for Industrial and Applied Mathematics
- Selected Coursework: Advanced Calculus I and II (Analysis), Partial Differential Equations I and II

## Academic Experience

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**Florida State University** Tallahassee, FL  
Undergraduate Researcher – Generative Compressed Sensing Incoming November 2026

- Advised by Dr. Nick Dexter
- Research topics: compressed sensing, generative modeling, inverse problems, active learning, scientific machine learning, representation learning, imaging
- Leveraging generative models for natural image recovery with conditional priors
- Languages and tools: Python, PyTorch, Hugging Face

**Emory University** Atlanta, GA  
Research Fellow – Computational Mathematics for Data Science REU June 2025 – August 2025

- Advised by Dr. Matthias Chung
- Research topics: scientific machine learning, inverse problems, low-rank matrix approximation, Bayes risk minimization, rank-constrained regression
- Derived closed-form, rank-constrained optimal linear mappings for scientific ML problems via Bayes risk minimization
- Validated results through numerical experiments on imaging, finance, and PDE datasets
- Languages and tools: Python, PyTorch

**University of Tennessee, Knoxville** Knoxville, TN  
Research Fellow – Quantum Algorithms and Optimization REU May 2024 – April 2025

- Advised by Dr. James Ostrowski
- Research topics: quantum computing, variational quantum algorithms, constrained optimization
- Introduced a novel flag-ancilla-based constraint gadget framework for constrained quadratic binary optimization problems that explicitly marks feasible basis states

- Used these gadgets to prepare equal superpositions of feasible states, allowing quantum optimization algorithms to operate directly on the feasible subspace and improving solution recovery
- Languages and tools: Python, PennyLane, PyTorch

## FAMU-FSU College of Engineering

Undergraduate Researcher – Operations Research

Tallahassee, FL

September 2023 – June 2025

- Advised by Dr. Arda Vanli
- Research topics: operations research, industrial engineering, mixed-integer nonlinear programming, data-driven healthcare, disease modeling
- Developed a data-driven mixed-integer nonlinear programming model that couples SIRV epidemic dynamics with patient movement
- Used Florida COVID-19 data to demonstrate how vaccination and mobility jointly affect surge patterns and unmet hospital bed demand
- Languages and tools: Python, Gurobi, GAMS, IBM ILOG CPLEX

## Industry Experience

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### Johns Hopkins University Applied Physics Laboratory

Data Science Intern

Laurel, MD

May 2026 – Present

- Data Science intern in the KBS Systems Performance Analysis group

## Publications

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### Conference Publications

1. **A. DeLise**, S. Abazari, A. Vanli. “An Epidemiological Mixed-Integer Nonlinear Programming Framework for Vaccine Modeling and Patient Allocation During Pandemics”, *Proceedings of the 10th North American International Conference on Industrial Engineering and Operations Management, Orlando, Florida, 2025*. DOI: [10.46254/NA10.20250088](https://doi.org/10.46254/NA10.20250088).

### Preprints

1. **A. DeLise**, K. Loh, K. Patel, M. Teague, A. Arnold, M. Chung. “Optimal Linear Baseline Models for Scientific Machine Learning.” Under review, 2025. [arXiv:2508.05831](https://arxiv.org/abs/2508.05831).
2. A. Wilkie, **A. DeLise**, A. Del Real, R. Herrman, J. Ostrowski. “Learning Feasible Quantum States for Quadratic Constrained Binary Optimization Problems.” Under review, 2025. [arXiv:2508.02590](https://arxiv.org/abs/2508.02590).

## Presentations

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### Contributed Talks

1. Apr 2026. *ACC Meeting of the Minds*, Tallahassee, FL.  
Active Learning for Conditional Generative Compressed Sensing [\[pdf\]](#)
2. Jan 2026. *Joint Mathematics Meetings, AMS Contributed Paper Session on Computer Science, Information, and Communication*, Washington, DC.  
Optimal Linear Baseline Models for Scientific Machine Learning [\[pdf\]](#)
3. Nov 2025. *SIAM Student Chapter*, Florida State University, Tallahassee, FL.  
Optimal Linear Baseline Models for Scientific Machine Learning [\[pdf\]](#)

## Poster Presentations

1. Apr 2026. *26th Annual Undergraduate Research Symposium*, Florida State University, Tallahassee, FL. Active Learning for Conditional Generative Compressed Sensing [\[pdf\]](#)
2. Mar 2026. *Florida Undergraduate Research Conference*, University of North Florida, Jacksonville, FL. Optimal Rank-Constrained Mappings for Linear ED Architectures [\[pdf\]](#)
3. Jan 2026. *Joint Mathematics Meetings AMS-PME Student Poster Session*, Emory University, Atlanta, GA. Optimal Rank-Constrained Mappings for Linear ED Architectures [\[pdf\]](#)
4. Aug 2025. *CMDS REU Poster Presentation*, Emory University, Atlanta, GA. Optimal Rank-Constrained Mappings for Linear ED Architectures [\[pdf\]](#)
5. Apr 2025. *25th Annual Undergraduate Research Symposium*, Florida State University, Tallahassee, FL. Data-Driven Patient Allocation Optimization with Epidemic and Vaccine Modeling [\[pdf\]](#)
6. Feb 2025. *Florida Undergraduate Research Conference*, University of South Florida, Tampa, FL. Data-Driven Patient Allocation Optimization with Epidemic and Vaccine Modeling [\[pdf\]](#)
7. Jan 2025. *Joint Mathematics Meetings AMS-PME Student Poster Session*, Seattle, WA. Learning Feasible States with ma-QAOA and QAOA for Constrained Optimization [\[pdf\]](#)
8. Jul 2024. *UTK Summer Research Symposium*, University of Tennessee, Knoxville, TN. Learning Feasible States with ma-QAOA and QAOA for Constrained Optimization [\[pdf\]](#)
9. Apr 2024. *24th Annual Undergraduate Research Symposium*, Florida State University, Tallahassee, FL. Cost-Effective Location Allocation for COVID-19 Patient Assignment in Florida: A Data-Driven Approach [\[pdf\]](#)

## Honors and Awards

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- Barry M. Goldwater Scholar 2026
- Barry M. Goldwater Scholarship Institutional Nominee, Florida State University 2025
- Presidential Scholar, Florida State University 2023
- President of Pi Mu Epsilon Mathematics Honor Society, Florida State University 2023
- Bright Futures Academic Scholar, State of Florida 2023