

NEELOFAR TAMBOLI

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Education

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| Tufts University , School of Engineering B.S. in Computer Science, completed pre-med coursework GPA: 3.49 overall — Science GPA (BCP): 3.73 Honors: Dean's List (8 semesters); Graduated Cum Laude Selected coursework: Algorithms; Data Structures; Computation Theory; Machine Learning & Data Mining; Big Data; Data Privacy & Security; Cybersecurity; Probability & Statistics; Linear Algebra; Multivariable Calculus; Differential Equations; Discrete Mathematics; Medical Technology Development; Entrepreneurship for CS; Premed: Biology I & II; General Chemistry I & II; Organic Chemistry; Genetics; Physics I & II. | Medford, MA 2021–2025 |
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Research Experience

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| Machine Learning Researcher – IC Laser Eye Care <i>Research Intern</i> | Hamilton, NJ May–Aug 2023 |
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- Led development of a DenseNet-121 model to detect pediatric strabismus from de-identified autorefraction and imaging data (AUC 0.94 with cross-validation).
- Designed data preprocessing, normalization, and class-balancing strategies for imbalanced clinical datasets.
- Implemented a HIPAA-compliant ETL workflow and documentation adopted by the clinical team.
- Work resulted in peer-reviewed abstract and poster at AAPOS 2024.

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| Integrative Medical Biology, Umeå University <i>Research Intern</i> | Sweden (remote/on-site as applicable) |
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- Performed immunohistochemistry and fluorescence microscopy on human extraocular muscle tissue.
- Conducted cryostat sectioning, multistep staining, antibody labeling, and imaging for desmin, synemin, and tenascin.
- Collaborated with investigators to optimize staining protocols and evaluate imaging quality, connecting tissue-level findings to ocular motility disorders.

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| SoundSense LLC (Senior Capstone) <i>Research Collaborator</i> | Princeton, NJ Sep 2024–May 2025 |
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- Built analytics pipeline for acoustic noise classification and exposure mapping for community and health applications.
- Developed dashboard to visualize temporal and spatial noise patterns for community monitoring.
- Co-authored a paper associated with a patented health-condition detection device using acoustic signatures.

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| Novaluna LLC <i>AI Research & Data Analytics Intern</i> | Princeton, NJ Mar 2023 – May 2025 |
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- Conducted applied research on financial document understanding using LLMs and agentic workflows, contributing to model architecture, evaluation, and prompt optimization.
- Automated month-end reconciliation, reducing processing time from hours to minutes and identifying \$75K/year in fee discrepancies.
- Developed earnings-call text analytics models that explained 18% of next-day FDX return variance, informing portfolio strategy.
- Communicated research findings to stakeholders through dashboards, demos, and written reports.

Technical Projects

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| SOPscribe – LLM-Based GMP Documentation Tool | 2024–present |
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- Designing LLM-based system for drafting & validating GMP-compliant documentation for cell and gene therapy manufacturing.
- Implementing prompt architectures, validation logic, and audit trails aligned with FDA 21 CFR Part 11.

Sentiment Analysis Using ML (CS135)

- Implemented sentiment classifiers using logistic regression with Bag-of-Words (AUROC 0.88) and BERT embeddings with MLP (AUROC 0.97).
- Performed hyperparameter tuning, cross-validation, and error analysis on held-out data.

Recipe Search Web Portal (CS20)

- Built full-stack web app recommending recipes based on available ingredients with responsive UI and RESTful backend.

Technical Skills

Programming & Tools: Python, R, Java, C++, SQL, C; Pandas, NumPy, scikit-learn, PyTorch, TensorFlow, Statsmodels; Jupyter Notebook; Tableau; Excel; Hadoop; GCP; Xcode/Swift.

Domains: Clinical data workflows; healthcare data privacy (HIPAA); financial analytics; regulatory documentation.

Leadership & Service

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| Resident Assistant, Tufts Residential Life (3 years) | Aug 2023–May 2025 |
| Vice President of Finance, Tufts Women’s Network | May 2024–May 2025 |
| Class Senator, Tufts Community Union Senate | Sep 2022–May 2024 |
| Treasurer, Tufts Community Union Judiciary | Jan 2023–Dec 2023 |
| Awards: 1st Place – Social Impact Track, Tufts \$100K New Ventures (2025); Montle Prize for Entrepreneurial Achievement (\$10K grant, 2024); Best Technology Innovation Award, Princeton ISEC Conference (2020). | |