

# SANDRO AMAGLOBELI

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## EDUCATION

**Stony Brook University**, Stony Brook, NY Expected May 2027  
*Master of Science in Computer Science* **GPA: 3.78/4.00**  
• **Coursework:** Computer Vision, Data Science, Hybrid Systems

**Hofstra University**, Hempstead, NY May 2025  
*Bachelor of Science in Computer Science and Mathematics* **GPA: 3.97/4.00**  
• **Coursework:** Artificial Intelligence, Machine Learning, NLP, Probability & Statistics, Linear Algebra, Software Engineering, DSA

## WORK EXPERIENCE

**Public Service Enterprise Group (PSEG)**, Newark, NJ June 2023 - Present  
*Trading Operations Risk Intern, Software Engineering*

- Automate daily reconciliation of published energy auction nodal prices using Python, enhancing processing speed and reliability
- Build auction ETL pipelines using Selenium/BeautifulSoup with retries and schema checks for PSEG trading workflows
- Implement an async FastAPI monitoring dashboard using WebSockets, APScheduler, and aiohttp for data and log monitoring
- Migrate VBA/VBS/Batch to Python/SQL with structured logging, email alerts, and a GUI failover downloader during outages

**Hofstra University**, Hempstead, NY August 2024 – Present  
*Machine Learning Research Assistant (NIH R15-EB029172)*

- Contribute to NIH-funded project developing CNN models for brain MRI tumor localization under undersampling artifacts
- Co-author peer-reviewed paper for SPIE Medical Imaging 2026 (oral presentation accepted); presenting at JMM '25 and '26
- Engineered FLNet using modified EfficientNet-B1 in PyTorch, trained on 8,240 MRI images across varying artifact conditions
- Co-designed VIFLNet variant with Gabor-filter preprocessing to simulate visual cortex, improving alignment with human observers
- Achieved 84% accuracy surpassing humans (82%) and SDOG4 (68%); training on extreme artifacts enables OOD generalization

**Maurice A. Deane School of Law at Hofstra University**, Hempstead, NY December 2022 – June 2025  
*Academic Intern*

- Spearheaded the development of an AI chatbot to guide users through filing claims with the NY State Small Claims Court
- Designed an ML system to simplify disability evaluation, classifying descriptions into 100+ subcategories with 90% accuracy
- Utilized Python, Rasa, and JavaScript for chatbot development; Trained NLP models to identify damage types in users' inputs
- Led the project's second phase, implementing translations and form autofill features based on user inputs and court location

## RESEARCH & SOFTWARE PROJECTS

**Blind Inverse Game Theory (Blind-IGT)** | *Co-Author* | *arXiv* | *Under review (AISTATS 2026)* Fall 2025  
• Co-authored Blind-IGT to resolve multiplicative scale ambiguity in entropy-regularized Quantal Response Equilibrium  
• Designed Normalized Least Squares (NLS) estimator for joint recovery of reward  $\theta$  and temperature  $\tau$  with  $O(N^{-1/2})$  rates  
• Generalized to entropy-regularized Markov games; proved robustness under unknown dynamics and validated via simulations

**Reachability-Constrained RRT\* for Car-Trailer Systems** | *Author* | *Paper* Fall 2025  
• Built RC-RRT\* parking planner for car-trailer nonholonomic dynamics using reachability-guided expansion and tube-verified edges  
• Verified hitch safety via 1D zonotope interval propagation keeping  $|\gamma| \leq 70^\circ$  under steering and hitch angle sensor uncertainties  
• Engineered conservative linearization inflated footprints and delivered 100% success with up to  $49\times$  speedup vs RRT\* & Hybrid A\*

**Multi-View Generalizable and Animatable Gaussian Head Avatar** | *Lead Developer* Fall 2025  
• Extended GAGAvatar to multi-view with visibility-aware voxel fusion and dual-layer Gaussian lifting to improve completeness  
• Fine-tuned via LoRA to reduce artifacts and improve perceptual quality, achieving CosSim 0.721 and LPIPS 0.623 on VFHQ data  
• Integrated NVIDIA Audio2Face with 52-D blendshape to FLAME mapping achieving lip-sync LSE-D 9.46 and LSE-C 5.89

**3D Gaussian Splatting for Scene Reconstruction** | *Lead Developer* Spring 2025  
• Architected a CUDA-accelerated 3D Gaussian Splatting pipeline with a real-time viewer for photorealistic, navigable scenes  
• Created a lightweight cross-platform viewer, enabling real-time exploration and interaction with reconstructed 3D spaces

## TECHNICAL SKILLS

**Languages:** Python, C, C++, Rust, C#, Java, JavaScript, SQL, R, Stata

**ML/Data Science:** PyTorch, CUDA, OpenCV, Scikit-learn, Hugging Face, cvxpy, NumPy, Pandas, SciPy, Matplotlib, Seaborn, Rasa NLP

**Web/Backend:** React, Vite, Node.js, Flask, Django, REST APIs, HTML/CSS, Bootstrap, PostgreSQL, MongoDB, Oracle SQL, AWS

**Tools & Methods:** Git, Docker, Agile/Scrum, Linux, Jupyter, MATLAB, Tableau, LaTeX, Selenium, BeautifulSoup, Scrapy

**Design:** Adobe Creative Suite (Photoshop, Illustrator, InDesign, Lightroom, Premiere Pro), MS Office

## HONORS AND ACHIEVEMENTS

Interdisciplinary Undergraduate Research Community (IURC) Award 2025

Casualty Actuarial Society (CAS) Student Central Independent Summer Program Digital Badge 2024

First place in hackathon organized by Google Developer Student Clubs on *United Nations Sustainable Development Goals* 2022

Participant in JPMorgan Chase & Co. Software Engineering Virtual Experience Program 2022

Pi Mu Epsilon (Math Honor Society); Honorable Mention at the Mathematical Contest in Modeling (MCM) 2022–2024

## LANGUAGES & LEADERSHIP

**Languages:** Georgian (Native), English (Fluent), Russian (Advanced)

**Leadership:** Treasurer (Gamma Iota Sigma), Peer Teacher (Elementary Statistics), Resident Assistant, theCoderSchool Code Coach