

Jules Oreste Mpano

Princeton, NJ | (609) 785-8792

julesmpano@princeton.edu • [linkedin.com/in/julesmpano](https://www.linkedin.com/in/julesmpano) • www.julesmpano.netlify.app • github.com/mpanojulesoreste

EDUCATION

Bachelors of Science in Engineering in Computer Science (May 2026) | **Princeton University**

Masters of Science in Engineering in Computer Science (Accepted and Expected in June 2028) | **Princeton University**

- Relevant Coursework: Machine Learning, Algorithms & Data Structures, Advanced Programming Techniques, Natural Language Processing, Computer Systems Architecture, Human-Computer Interaction

TECHNICAL SKILLS

- Programming Languages:** Python, Java, C, C++, JavaScript, TypeScript, R, SQL, PHP
- Web & Cloud:** React.js, Node.js, Express.js, Flask, FastAPI, Next.js, MongoDB, PostgreSQL, AWS, Docker, Git/GitHub
- ML & Systems:** PyTorch, TensorFlow, OpenCV, ROS, Arduino, CUDA, Postman, CI/CD

WORK EXPERIENCE

Software Engineer & Product Manager Intern | Our Kids Read

April 2024 - August 2024

- Led development of full-stack reminder system using Node.js, Express.js, React.js, and Twilio API, handling 1,000+ daily SMS reminders and boosting tutoring attendance by 40%
- Designed and implemented a secure user authentication system using JSON Web Tokens (JWT) and an optimized MongoDB database schema to enhance data retrieval speed by 30%, ensuring both user data protection and improved performance.
- Spearheaded the development and testing of RESTful API endpoints for CRUD operations, utilizing Postman for testing and Jest.js for ensuring robust functionality, improving backend reliability and enabling seamless integration with frontend systems.

RESEARCH EXPERIENCE

Research Assistant – Self-Organizing Swarms & Robotics Lab

June 2025 – April 2026

Princeton University Senior Thesis | Advisor: Prof. Radhika Nagpal

- Built a monocular depth-estimation and collision-avoidance system for a bio-inspired autonomous underwater robot, deploying **Depth Anything V2** for real-time obstacle detection on embedded hardware (Raspberry Pi 5).
- Ran a 3D-reconstruction benchmark across **COLMAP, MapAnything, and Depth-Anything-V3**, characterizing failure modes and optimal operating regimes on diverse underwater datasets under heavy distribution shift.
- Designed a threshold-based detection pipeline over stereo fisheye feeds, partitioning spatial awareness into six regions with five-level confidence classification. Advisor rated progress publication-worthy.

Research Assistant – Princeton HCI Group

September 2025 – March 2026

SorryIMissedThis: AI-Powered Relationship Maintenance | Advisor: Prof. Parastoo Abtahi

- Published in the **CHI 2026 Extended Abstracts** (ACM). doi.org/10.1145/3772363.3799073.
- Architected a full-stack system (Flask, React/Tailwind, Azure Cosmos DB) ingesting conversation histories and generating context-aware prompts via a **three-stage LLM pipeline**: context & style modeling, template-guided synthesis, heuristic fallback. Privacy-preserving, local-first architecture transmitting only aggregated metadata.
- Evaluated in a counterbalanced within-subjects study (N=15); history-informed prompts drove **3x the engagement** of generic prompts, with significant gains in connectedness ($r=0.82$) and overall satisfaction ($r=0.92$).

PROJECTS

LexAI - AI-Powered Legal Assistant

February 2025 - May 2025

COS 448: Innovating Across Technology, Business, and Marketplaces

- Developed AI-driven document processing pipeline using GPT-4.1, TypeScript, and Next.js; optimized model inference on NVIDIA RTX 3060 GPUs through CUDA acceleration, improving throughput by 65%
- Implemented OCR text extraction and multi-stage verification systems reducing legal document review time by 37%, demonstrating practical application of LLMs to domain-specific workflows

Edu-Sports Academy Management System

February 2025 - May 2025

COS 333: Advanced Programming Techniques

- Led development of responsive dashboard interfaces for a golf academy management platform serving 500+ users, optimizing UI for administrators, instructors, and golfers across desktop and mobile devices
- Collaborated in agile team of 5 developers, participating in 20+ code reviews and reducing load time by 40% through React.js component optimization