

Swopnil Panday

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EDUCATION

Villanova University

Villanova, PA

Bachelor of Science in Computer Science, Minor in Mathematics

Aug. 2022 – May 2026

- GPA: 3.81/4.0
- Villanova Presidential Scholar (Top 25 from 1600 students)
- About Me: Passionate about building technology that better lives, combining my love for AI/ML and software development to turn creative ideas into real solutions.

EXPERIENCE

Undergraduate Researcher

June 2024 – Present

Center for Research and Fellowship

Villanova, PA

- Developed and implemented CNN models for currency bill recognition to assist visually impaired individuals and international travelers, utilizing transfer learning with ResNet50, VGG16, and Inception-v3, achieving 90% prediction accuracy.
- Optimized model performance through different image augmentation techniques and extensive hyperparameter tuning, reducing overfitting and improving validation accuracy for reliable real-world use by visually impaired users.
- Created a diverse dataset of over 50,000 currency images from 25 countries, incorporating various lighting conditions and camera angles, to ensure robust performance and accuracy.
- Designed and developed an accessible iOS application with voice feedback for blind users, enabling real-time currency detection and denomination announcement in multiple languages.

Undergraduate Research Assistant

Feb. 2023 – Aug 2023

Villanova University

Villanova, PA

- Conducted extensive research on dataset image redundancy reduction, evaluating 5 open-source deep-learning algorithms for recognition and matching experiments, resulting in a 30% improvement in data quality and a 25% reduction in dataset size.
- Designed and developed automated Python tools that increased image recognition efficiency by 40%, eliminating 95% of redundant images and enhancing overall dataset quality by reducing noise by 35%.

Tech Instructor

May 2023 – Aug 2023

Building 21

Philadelphia, PA

- Instructed Python programming to over 50 underprivileged students in Philadelphia, achieving a 100% course completion rate.
- Led the "Launchpad" program, guiding 50+ high school students in building successful tech career paths, resulting in students applying for STEM programs.

Software Developer and Penetration Tester

Oct. 2021 – July 2022

Eminence Ways

Kathmandu, Nepal

- Developed an audit and asset management systems for 3 government agencies using Django and React.js, featuring responsive UIs, real-time D3.js visualizations, RESTful APIs, optimized PostgreSQL databases, and all containerized in Docker.
- Conducted penetration tests on 15 mobile apps and 20 web applications, identifying an average of 12 critical vulnerabilities per application.

President

October 2024 – Present

Villanova Software Engineers

Villanova, PA

- Lead a community of 20+ student developers, developing projects for on campus startups and deploying solutions in real time. Successfully built a project management system and club website.

Additional Leadership Experience

- Lead Developer, HackNepal: Designed and deployed PYsecure, a custom Python/V8 browser with advanced security features, resulting in 70% improved threat detection across 8 major organizations in Nepal
- Student Lead, Classroom Technologies: Managed and maintained technology infrastructure across 50+ classrooms; solved over 200 technical issues, earning promotion to Student Lead and setting a performance record.
- Captain, Villanova Cricket Club: Lead 25-member team, organizing games, game watch and playing for fun.

TECHNICAL SKILLS

Languages & Tools: Python, Java, JavaScript, Swift, React, Django, Flask

Web & Cloud: HTML/CSS, RESTful APIs, MySQL, AWS, Firebase

ML/AI: TensorFlow, Keras, OpenCV, NLTK