

DEEP PATEL

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EDUCATION

Towson University: *BS in Computer Science*

Towson, MD, May 2019

GPA: 3.98/4.00 | **Summa Cum Laude** | Dean's List (8x)

PUBLICATIONS & AWARDS

- Learning Higher-order Object Interactions for Keypoint-based Video Understanding. *ICCV Workshop on Structured Representations for Video Understanding*. Yi Huang, Asim Kadav, Farley Lai, **Deep Patel**, Hans Peter Graf
- 2020 NEC Labs Business Contribution Award for Smart Video Analytics in Retail.
- Towson University 2017 Admissions Scholarship for Outstanding Academic Achievements.

EXPERIENCE

NEC Labs America - ML Department

Princeton, NJ

Research Engineer

Aug 2020 – Current

- Trained, evaluated, fine-tuned and designed **action recognition** models for custom datasets.
- Built a real time, secure and scalable cloud **video streaming and analytics** platform.
- Designed a **self-supervised** learning task for multi modality transformer models.
- Programmed complex multi-GPU training setup and performed ablation studies.
- Implemented a linux based firmware for cloud video and audio streaming using wifi security cameras.

NEC-X - Eigen Team

Princeton, NJ

Software Engineer

Sept 2019 – Aug 2020

- Developed the production **backend** for the video understanding system on AWS using **Lambda**, ECS, **EC2**, etc.
- Improved the existing system to support multiple cameras with **batch and multi-processing**.
- Conserved more than **\$10,000** of cloud cost per year using cost efficient design and implementation.
- **Optimized** the video reasoning pipeline using INT8 quantization and half precision inference.
- Created a **serverless** notification delivery platform for minimal latency sms, email and push alerts.

INSuRE - Johns Hopkins University - Applied Physics Lab

Baltimore, MD

Machine Learning Lead

Dec 2018 – May 2019

- Wrote a web crawler to collect features from websites that are used for intelligent analysis using NLP.
- Deployed the **RESTful API** for cloud based inference for on demand requests.
- Integrated the **sequential learning network** in the backend of a chrome extension for real time on device inference.

Towson University - CS Department

Towson, MD

Research Assistant

August 2018 – May 2019

- Performed independent research on detection and classification of edible wild plants using **transfer learning**.
- Trained and fine-tuned residual convnet models and handled data imbalance to improve model performance by 15%.
- Used different evaluation metrics such as confusion matrix and ROC curve to evaluate the model performance.

TECHNICAL SKILLS

Programming: C, Python, Java, JavaScript, C++, Kotlin, Scala, Perl.

Databases / ETL: MySQL, PostgreSQL, SQLite, MongoDB, Spark, BigQuery, DynamoDB, GraphQL.

ML / Deep Learning: Pytorch, Numpy, MLflow, OpenCV, TensorRT, Triton Inference Server.

Others: Linux, Windows, AWS, Google Cloud, Docker, Kubernetes, Shell Scripting, Postman, Git, Agile Practices, Android development and Firmware/Embedded development.