

# Adiel Felsen

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## EDUCATION

### Carnegie Mellon University | School of Computer Science

*Master of Science, Machine Learning*

Pittsburgh, PA

*Expected in Dec 2023*

### Binghamton University, SUNY | Watson College of Engineering and Applied Science

*Bachelor of Science, Computer Science*

*Bachelor of Arts, Mathematics*

GPA: 3.98/4.00 | Dean's List all semesters

University Scholars Program | President's Scholarship | Award for Academic Excellence in Computer Science | Award for Excellence in Mathematical Sciences | Mathematics Departmental Honors | CS Student Advisory Committee

Binghamton, NY

*May 2022*

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## WORK EXPERIENCE

### NASA Goddard Space Flight Center

Machine Learning for Atmospheric Chemistry Intern

Greenbelt, MD

*Jun 2022 – Aug 2022*

- Researched machine learning techniques to detect concentrations of the hydroxyl radical in the atmosphere
- Analyzed accuracy and efficiency differences between gradient boosted decision trees (GBDT) and neural networks
- Leveraged data from the Goddard Earth Observing System (GEOS) model and in-situ aircraft measurements

### Mars Inc.

Data Science Intern

Chicago, IL

*May 2021 – Aug 2021*

- Trained a PyTorch CNN to classify M&M printing defects, saving hours of manual quality control checks
- Implemented a KMeans color clustering system to detect M&M's in an image
- Introduced a new capability of generating synthetic image data using Blender
- Built a website for factory workers to upload images and analyze proportions of defects
- Presented methodology and results to associates across the business during Data Chat and Open Mic sessions

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## RESEARCH EXPERIENCE

### The Research Foundation for SUNY

Biomedical Machine Learning Researcher

Binghamton, NY

*May 2020 – May 2022*

- Segmented cell nuclei from stimulated Raman scattering (SRS) images of cancer cells using PyTorch
- Experimented with semantic and instance segmentation using UNet and Mask R-CNN architectures
- Decomposed hyperspectral image data into core biological components using auto encoder networks
- Collaborated with Computer Science and Biomedical Engineering departments and led status meetings
- Presented progress and results at Binghamton University Data Salon, KGML2021, IEEE BigData 2021

### Binghamton University FRI Research Program

Student Researcher

Binghamton, NY

*Aug 2018 – Dec 2019*

- Collaborated with 6 other student researchers in a program focused on cutting-edge computer vision research
- Researched use of CNNs in Tensorflow to determine a subject's fatigue level using gaze and facial features

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## PUBLICATIONS

**Felsen, A.**, Yuan Y., Burzynski, N., Reitano, D., Wang, Z., Sethi, K., Lu, F., Chiu, K. Cell Nuclei and Lipid Droplet Quantification in SRS Images. Poster-paper accepted at: IEEE International Conference on Big Data; December 2021; Orlando, FL.

Burzynski, N., Yuan Y., **Felsen, A.**, Reitano, D., Wang, Z., Sethi, K., Lu, F., Chiu, K. Deep Learning Techniques for Unmixing of Hyperspectral SRS Images. Poster accepted at: IEEE International Conference on Big Data; December 2021; Orlando, FL.

Burzynski, N., **Felsen, A.**, Yuan, Y., Reitano, D., Wang, Z., Lu, F., Chiu, K. Applications of Machine Learning in SRS Cancer Cell Analysis. Poster presented at: Knowledge Guided Machine Learning Workshop (KGML2021); August 2021; Minneapolis, MN.

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## PROJECTS AND AWARDS

### HackBU Annual Hackathon

*Funniest Hack (2022) | #1 Best Hack Overall (2021) | Best Machine Learning Hack (2021) | Best Building a Better Future Hack (2021) | Best Civic Engagement Hack (2021) | Featured Project (2020) | Best Valentine's Day Hack (2019)*

Binghamton, NY

**Association for Computing Machinery (ACM) Programming Competition - First Place Winner (2019)**

Binghamton, NY

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## SKILLS

**Programming Languages:** Python (PyTorch, TensorFlow, Keras, NumPy, Pandas, OpenCV), C, C++, Java, R, SQL

**Software and OS:** Git, Linux, Bash, Blender, Microsoft Excel