

# Josh Myers-Dean

[Website](#)

[Github](#)

[Google Scholar](#)

josh.myers-dean@colorado.edu

Boulder, CO

## EDUCATION

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### University of Colorado, Boulder

*Computer Science, Ph.D. - GPA: 4.0/4.0*

Advisor: *Danna Gurari*

Boulder, CO

*Fall 2021 - Present*

### Western Washington University

*Computer Science, BSc.; Mathematics Minor*

Advisors: *Scott Wehrwein, Filip Jagodzinski*

Bellingham, WA

*Awarded June 2021*

## RESEARCH EXPERIENCE

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### Adobe Research

*Research Scientist Intern*

Remote

*May 2022 - August 2022*

- **Interactive Segmentation:** Come back soon :)

### University of Colorado, Boulder

*Graduate Research Assistant*

Boulder, CO

*August 2021 - Present*

- **Part-Whole Relationships:** Investigating approaches to hierarchical vision-language tasks.
- **Few-Shot Learning:** Implemented non-meta learning based approaches, along with a contrastive regularization, to *generalized* few-shot semantic segmentation using PyTorch.

### Pacific Northwest National Laboratory

*NLP Research Intern - Applied Statistics and Comp. Modeling*

Richland, WA

*August 2020 - September 2021*

- **Speaker Diarization:** Investigated the removal of poor audio segments to improve speaker diarization metrics.
- **Granular Classification:** Developed a simple yet effective pipeline using zero-shot learning and Transformers to extract fine-grained labels for a given entity. Accelerated using PySpark.
- **Multimodal Relationships:** Investigating the relationship between poor ASR results and audio representations (e.g. embeddings, mel spectrograms) to identify untrustworthy audio segments for downstream tasks.

### Western Washington University, Computer Science Dept.

*Undergraduate Research Assistant*

Bellingham, WA

*April 2019-June 2021*

- **Computational Photography:** Using per-pixel features from deep neural networks to improve lower-level computer vision and image processing tasks such as range masking, seam carving, and graph cuts.
- **International Border Detection:** Implemented deep learning and classical machine learning techniques on Bing satellite imagery to identify international border legibility.
- **Dimensionality Reduction:** Trained a multi-layer perceptron using triplet loss to reduce the dimensionality of deep features while maintaining a notion of inter-class similarity.

## WORK EXPERIENCE

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### CU Boulder, Computer Science Dept.

*Grader - [Neural Networks & Deep Learning](#)*

Boulder, CO

*January 2022 - May 2022*

- **Grading:** Graded and provided detailed feedback to graduate student research projects.

### Pacific Northwest National Laboratory

*Technical Intern - Biosurveillance Mobile App. Development Competition*

Richland, WA

*June 2020 - August 2020*

- **Unity:** Utilized Unity3D to build a training application for the Oculus Go over a 10 week period. This was a competition in which my team took first place.

- **Scrum:** Participated in daily stand up meetings as well as adhere to weekly sprints.
- **Shareholder Communication:** Held weekly presentations with both internal and external shareholders to ensure sufficient progress was being made.

## Western Washington University, Computer Science Dept.

Bellingham, WA

Teaching Assistant - *Intro to Computer Vision, Computer Graphics*

September 2020 - March 2021

- **Mentorship & Grading:** Held weekly office hours and graded exams, homeworks, and projects for both graduate and undergraduate students.

## Western Washington University, Associated Students

Bellingham, WA

Web Applications Developer

April 2019 - June 2020

- **Full Stack Development:** Utilized Django, ReactJS, Docker, and Azure hosting to create responsive web applications that are used daily by students, faculty, and staff at WWU.
- **Rest API:** Created REST API's using Golang Gin for a lost and found web application while utilizing ReactJS for the client-facing side of the application.
- **Web Accessibility:** Worked within a team to ensure our web pages were accessible and compliant with WCAG 2.0 standards, as well as participate in accessibility sprints when needed. Achieved a SiteImprove score of over 98%.

## PUBLICATIONS

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† Denotes equal contribution

- **Josh Myers-Dean**, Yinan Zhao, Brian Price, Scott Cohen, Danna Gurari. *Under Review*
- Haley A. Wofford<sup>†</sup>, **Josh Myers-Dean**<sup>†</sup>, Brandon A. Vogel, Kevin Alexander Estrada Alamo, Frederick A. Longshore-Neate, Filip Jagodzinski, and Jeanine F. Amacher. Domain analysis and motif matcher (damm): A program to predict selectivity determinants in monosiga brevicollis pdz domains using human pdz data. *Molecules*, 26(19), 2021. [Project Page](#)
- David H. Smith, Qiang Hao, Christopher D. Hundhausen, Filip Jagodzinski, **Josh Myers-Dean**, and Kira Jaeger. Towards modeling student engagement with interactive computing textbooks: An empirical study. In *Proceedings of the 52nd ACM Technical Symposium on Computer Science Education, SIGCSE '21*, page 914–920, New York, NY, USA, 2021. Association for Computing Machinery
- **Josh Myers-Dean** and Scott Wehrwein. Semantic pixel distances for image editing. In *The IEEE Conference on Computer Vision and Pattern Recognition (CVPR) Workshops*, June 2020. *Accepted for oral presentation* [Project Page](#)
- Sam Herr<sup>†</sup>, **Josh Myers-Dean**<sup>†</sup>, Hunter Read<sup>†</sup>, and Filip Jagodzinski. Petra: Drug engineering via rigidity analysis. *Molecules*, 25(6):1304, Mar 2020

## AWARDS

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- Adobe Code Quality Jam: Best Collaboration, Best Documentation HM, Overall Code Quality HM - 2022
- NSF Graduate Research Fellowship Program: Proposal Title: *Spatio-Temporal Feature Matching for Time-Varying Structure from Motion* - 2021-2026
- Early Career Professional Development Fellowship: CU Boulder Computer Science - 2021
- James Lee Johnson Memorial Endowment: Western Washington University Computer Science - 2020
- Tuition Reimbursement: Pacific Northwest National Laboratory - 2020
- 1<sup>st</sup> Place - Biosurveillance Mobile App. Dev. Competition: Pacific Northwest National Laboratory - 2020
- Federal Pell Grant: 2015-2021

## PRESENTATIONS

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- Giving Context: Entity Classification from a Single Name: August 2021, PNNL Virtual Research Symposium
- Robust Entity Tagging in the Wild: December 2020, PNNL Virtual Research Symposium
- Semantic Pixel Distances for Image Editing: June 2020, CVPR NTIRE. [Video](#)
- Bash: Fall 2019, [Materials](#)
- Machine Learning: Fall 2019, Winter 2020, [Materials](#)
- API: Winter 2020, [Materials](#)

## OUTREACH

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- Teen Science Cafe [Program Page](#)
- CU Boulder PhD Application Mentoring [Program Page](#)
- WWU Computer Science Peer Tutor [Program Page](#)
- Sunnyland Elementary School “Hour of Code” [Program Page](#)

## TECHNICAL SKILLS

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- **Languages:** Golang, Python, Javascript, C#, C, MySQL, Java, R, Shell, Julia, L<sup>A</sup>T<sub>E</sub>X
- **Technologies & Frameworks:** Databricks, Docker, Git, WandB, PySpark, Linux, AWS S3, AWS EC2, PyTorch, Numpy, OpenCV, ReactJS, Git, Jax, Detectron, FastAPI

## RELEVANT COURSES

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- Deep Learning, Computer Vision, Computer Graphics, Advances in Computer Vision, Statistical Methods, Multivariable Calculus, Numerical Computation, Data Driven Modeling, Reinforcement Learning