Madeleine Grunde-McLaughlin

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EDUCATION

UNIVERSITY OF PENNSYLVANIA   *Philadelphia, PA*
Bachelor of Arts in Cognitive Science   *August 2016 - May 2021*
Minors: Computer Science, French
GPA: 3.95/4.00

PRINCETON UNIVERSITY   *Princeton, NJ*
Audited Computer Vision, NLP, Advanced Graph Theory (not for credit)   *September - December 2019*

LYON LUMIÈRE II   *Lyon, France*
French courses including Neuroscience, Human Computer Interaction, and Memory   *January - May 2019*

COUNCIL ROCK NORTH HIGH SCHOOL   *Newtown, PA*
June 2016

RESEARCH

ACTION GENOME QUESTION ANSWERING   *Stanford University*
Domain: Computer Vision   *May 2020 – Present*
Mentors: Professor Maneesh Agrawala. Ranjay Krishna
Publication: IEEE CVPR 2021
- Built a pipeline to generate over 192 million complex question answer pairs about videos
- Developed an algorithm to balance answer distributions, leaving a final dataset of 3.9 million question-answer pairs
- Established a suite of metrics to measure different compositional reasoning skills
- Applied successfully for AWS credits through the Stanford Institute for Human-Centered Artificial Intelligence

HIERARCHICAL REASONING IN WORKING MEMORY   *University of Pennsylvania*
Domain: Cognitive Science   *January 2020 - May 2021*
Mentors: Professor Alan Stocker, Dr. Cheng Qiu
- Created an interactive task to measure attraction and repulsion biases in spatial working memory
- Wrote a literature review about previous tactics used to predict the structure of working memory

BAYESIAN INTERVENTIONS   *Northwestern University*
Domain: Human Computer Interaction   *June - December 2019*
Mentors: Professor Jessica Hullman, Professor Yea-Seul Kim
Publication: IEEE InfoVis 2020
- Formulated a design space for visualizations using belief elicitation and Bayesian modeling
- Constructed Bayesian statistical models of the cognitive effects of source trust
- Designed and implemented interactive Bayesian visualizations through D3 and Idyll
- Analyzed literature on source trust elicitation and risk analogies to inform project design decisions

THEY DRAW IT!   *Northwestern University*
Domain: Human Computer Interaction   *June - August 2019*
Mentors: Professor Jessica Hullman, Francis Nguyen
- Implemented multiple style functionalities for tool helping journalists create interactive visuals
- Contributed to design decisions about improving interface useability
- Brainstormed questions to ask journalists about interactive visualizations and analyzed responses

WILLINGNESS TO WAIT   *University of Pennsylvania*
Domain: Behavioral Science   *January - May 2018*
Mentor: Dr. Karolina Lempert
- Collected participants' data on their willingness to wait for rewards under uncertainty
- Recorded their results into MATLAB for further analysis

VENEZUELAN HEALTH CARE STANDARDS   *University of Pennsylvania Law School*
Domain: Healthcare Policy   *October - December 2017*
- Investigated Venezuelan health care standards from public records, journalism, and international reports
- Organized research to inform Penn Law students providing aid to asylum seekers

PUBLICATIONS

AGQA: A Benchmark for Compositional Spatio-Temporal Reasoning
Madeleine Grunde-McLaughlin, Ranjay Krishna, Maneesh Agrawala
Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition, 2021

Bayesian-Assisted Inference from Visualized Data
Yea-Seul Kim, Paula Kayongo, **Madeleine Grunde-McLaughlin**, Jessica Hullman
IEEE Transactions on Visualization and Computer Graphics, 2020

PRESENTATIONS

AGQA: A Benchmark for Compositional Spatio-Temporal Reasoning
Madeleine Grunde-McLaughlin, Ranjay Krishna, Maneesh Agrawala
Poster Presentation: Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition, 2021

Measuring Spatio-Temporal Reasoning Through VideoQA
Madeleine Grunde-McLaughlin, Ranjay Krishna, Maneesh Agrawala
Poster Presentation: Grace Hopper Celebration of Women in Computing, 2020

AWARDS

College Alumni Society Prize in Cognitive Science 2021
Awarded to the best Cognitive Science thesis each year.

WORK EXPERIENCE

ARAVIND EYE CARE SYSTEMS   *Madurai, India*
Project Student   *May - August 2018*
-   Implemented a Moodle Learning Management System to track training completion for doctors and nurses
-   Lead a focus group with 8 doctors to test the Learning Management System interface
-   Re-structured the doctor's training curriculum into modules that specifically target doctors' needs
-   Liaised between 5 departments on designing the goals and implementation of this project

DYNAMIX GYMNASTICS   *Levittown, Pennsylvania*
Assistant Camp Director   *June - August 2017*
-   Managed a team of 11 coaches of various experience levels
-   Produced lesson plans for competitive and recreational gymnasts
-   Communicated goals to and mediated interpersonal conflicts among coaches, parents, and children

SERVICE AND LEADERSHIP

PENN FOR REFUGEE EMPOWERMENT   *University of Pennsylvania*
Leadership Positions: Vice President, Director of Tutoring   *February 2017 - Present*
-   Co-founded tutoring program that now connects 50+ volunteers to tutor refugees in Philadelphia and abroad
-   Re-structured the organization's focus to increase tutoring numbers by over 300% in one semester
-   Participated in the UN TOGETHER Campaign to promote university student led refugee aid organizations
-   Tutor high school students at the African Family and Health Organization (AFAHO) in West Philadelphia
-   Establishing a college mentorship program for AFAHO students with workshops, educational materials, and mentoring

ALPHA PHI OMEGA SERVICE FRATERNITY   *University of Pennsylvania*
Leadership Positions: Pledge Service Chair, Leadership Committee   *January 2018 - Present*
-   Volunteer at various service events in Philadelphia, especially UCHC soup kitchens and Books Through Bars
-   Lead a committee to organize a service event cleaning the streets of North Philadelphia