Garrett Allen

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Summary

A researcher pursuing a PhD in Human-Centered Artificial Intelligence specifically focused on creating a dual-purpose gesture input modality for workers on microtask crowdsourcing platforms like Amazon Mechanical Turk. Garrett holds a Master's Degree in Computer Science focused in *information retrieval* including the interdisciplinary research topics of *child-computer interaction*, *natural language processing*, and *education*. He has publications at top international conferences (ACM RecSys, ECIR) and is an experienced software engineer with five years of industry experience at startups.

Education

Delft University of Technology   *Delft, South Holland, Netherlands*
PH.D. IN COMPUTER SCIENCE   *In Progress*

Boise State University   *Boise, ID*
MASTER OF SCIENCE IN COMPUTER SCIENCE   *December 2021*
- Thesis: A Multi-Perspective Learning to Rank Strategy to Support Children's Search in the Classroom – Advisor: Dr. Maria Soledad Pera

Boise State University   *Boise, ID*
BACHELOR OF SCIENCE IN COMPUTER SCIENCE   *May 2020*

Experience

Delft University of Technology   *Delft, South Holland, Netherlands*
PHD CANDIDATE   *Jan. 2022 - Present*
- Collaborating with a research team investigating and developing AI tools at scale (Design @ Scale Lab)
- Researching and developing Human-centric AI systems

Boise State University   *Boise, ID*
GRADUATE RESEARCH ASSISTANT   *May 2020 - Dec. 2021*
- Collaborated with an interdisciplinary research team developing the Child Adaptive Search Tool (CAST)
- Researched and developed Information Retrieval tools for the educational domain

Boise State University   *Boise, ID*
UNDERGRADUATE RESEARCH ASSISTANT   *Jan. 2020 - May 2020*
- Participated in development of the Child Adaptive Search Tool (CAST)
- Experienced the research process through re-implementing past works

Aska Lokal   *Boise, ID*
SOFTWARE DEVELOPER   *Jul. 2019 - May 2020*
- Traced and repaired bugs in application
- Developed expansions to the API supporting the mobile application

Art of Visuals   *Boise, ID*
SOFTWARE ENGINEER   *May 2017 - Jan. 2020*
- Developed, managed, and maintained Postgres databases, EC2 instances, S3 buckets, Django REST APIs and documentation

Reply Pro *Boise, ID*
Software Engineer *Mar. 2015 - Mar. 2018*
- Developed, managed, and maintained a Postgres database, a Django Rest API, as well as mobile & web applications

Publications

- **Garrett Allen**, Andrea Hu, Ujwal Gadiraju. *What You Show is What You Get! Gestures for Microtask Crowdsourcing*. 2023. To Appear in the Proceedings of the 28th International Conference on Intelligent User Interfaces.

- **Garrett Allen**, Andrea Hu, Ujwal Gadiraju. *Gesticulate for Health's Sake! Understanding the Use of Gestures as an Input Modality for Microtask Crowdsourcing*. 2022. Proceedings of the AAAI Conference on Human Computation and Crowdsourcing.

- **Garrett Allen**, Ashlee Milton, Katherine Landau Wright, Jerry Alan Fails, Casey Kennington, Maria Soledad Pera. *Supercalifragilisticexpialidocious: Why Using the "Right" Readability Formula in Children's Web Search Matters*. 2022. Proceedings of the European Conference on Information Retrieval.

- **Garrett Allen**, Jie Yang, Maria Soledad Pera, Ujwal Gadiraju. *Using Conversational Artificial Intelligence to Support Children's Search in the Classroom*. 2021. Presented at CUI@CSCW Workshop 2021.

- Lawrence Spear, Ashlee Milton, **Garrett Allen**, Amifa Raj, Michael Green, Michael D Ekstrand, Maria Soledad Pera. *Baby Shark to Barracuda: Analyzing Children's Music Listening Behavior*. 2021. Fifteenth ACM Conference on Recommender Systems, 639-644.

- Ashlee Milton, **Garrett Allen**, Maria Soledad Pera. *To Infinity and Beyond! Accessibility is the Future for Kids' Search Engines*. 2021. IR for Children 2000-2020: Where Are We Now? – Workshop co-located with the 44th International ACM SIGIR Conference on Research and Development in Information Retrieval.

- **Garrett Allen**, Katherine Landau Wright, Jerry Alan Fails, Casey Kennington, Maria Soledad Pera. *CASTing a Net: Supporting Teachers with Search Technology*. 2021. KidRec '21: 5th International and Interdisciplinary Perspectives on Children & Recommender and Information Retrieval Systems (KidRec) Search and Recommendation Technology through the Lens of a Teacher- Co-located with ACM IDC 2021.

- **Garrett Allen**, Ben Peterson, Dhanush kumar Ratakonda, Mostofa Najmus Sakib, Jerry Alan Fails, Casey Kennington, Katherine Landau Wright, Maria Soledad Pera. 2021. *Engage!: Co-designing Search Engine Result Pages to Foster Interactions*. Interaction Design and Children (IDC '21), Athens, Greece, 583-587.

- **Garrett Allen**, Brody Downs, Aprajita Shukla, Casey Kennington, Jerry Alan Fails, Katherine Landau Wright, and Maria Soledad Pera. 2020. *BiG-BERT: Classifying Educational Web Resources for Kindergarten-12th Grades*. Proceedings of the European Conference on Information Retrieval. 176-184.

- Ashlee Milton, Levesson Batista, **Garrett Allen**, Siqi Gao, Yiu-Kai D Ng, and Maria Soledad Pera. 2020. *"Don't Judge a Book by its Cover": Exploring Book Traits Children Favor*. Fourteenth ACM Conference on Recommender Systems. Association for Computing Machinery, New York, NY, USA, 669–674.

Technical Skills

Legend: Used in **most projects** / several projects / *one or two projects*.

Programming Languages	**Python**, Java, JavaScript, *C, PHP, Bash, Swift*
Algorithm and Data Manipulation	**Numpy, Sklearn**, NLTK, *Spacy, PyTorch, Tensorflow, Keras, Huggingface, Flair, H2O, NetworkX*
Text Representation	*Word Embeddings [Edu2Vec, FastText, GloVe], BERT, TF-IDF*
Architectures	*GRU, Transformers, Convolutional Networks, LSTM, Attention Models*
Data Management	**Pandas**, PostgreSQL, Redis, *MongoDB*
Data Visualization	**Seaborn, MatPlotLib**, d3.js
Web & Mobile Development	**Django, Bootstrap, Ionic**, *VueJS, AngularJS, ReactJS, Flask*
Cloud Management	AWS S3, AWS EC2, Heroku
Environments and Containerization	**PyCharm, Jupyter**, Vagrant, *Docker, AndroidStudio, XCode*
Miscellaneous	**Git, LaTeX**

Awards & Grants

2020-2021 **Scholarship,** Boise State Graduate Assistantship funded by National Science Foundation Award # 1763649

Artifacts

Krell Wiki Bot

Pycharm | Discord.py | Heroku | Git | GitHub *2021*

A Discord bot to retrieve information from a community Dungeons and Dragons wiki and post it to Discord chat. Supports re-indexing to maintain up-to-date knowledge of pages as the wiki grows. Actively in development with a road map of new features to come.

BiGBERT: Classifying Educational Web Resources for Kindergarten-12th Grades

Python | Edu2Vec | BERT | Convolutional Networks | Flair | Tensorflow | Keras *2021*

The web is full of information, some of it educational, so how do we identify educational information for children? With BiGBERT, a deep learning model that simultaneously examines URLs and snippets from web resources to determine their alignment with children's educational standards. The model leverages domain knowledge to learn domain-aligned contextual nuances from limited input.

Covid Data Live

JavaScript | Bootstrap | d3.js | Heroku | Git *2020*

A web dashboard to display the current status of Covid-19 cases, deaths, and tests worldwide. The data is pulled directly from Our World in Data, which updates daily.

Wikipedia Article Search Engine

Python | TF-IDF | Numpy | Pandas *2019*

A simple search engine that uses TF-IDF to retrieve Wikipedia articles related to a given query. Text preprocessing measures including stopword removal, stemming, punctuation removal, and number cleansing were applied before indexing.