

# Danula Hettiachchi

Research Fellow at RMIT University · Crowdsourcing · Social Computing

Melbourne, 3000, Victoria, Australia

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## Summary

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I am a research fellow interested in fairness in automated decision making, crowdsourcing and social computing. I have extensive research experience in human-computer interaction, including quantitative methods and user studies complemented with prior industry experience in machine learning, data engineering, software development and analytics.

## Education

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PhD in Engineering, School of Computing and Information Systems, The University of Melbourne

Melbourne, Australia

Thesis on task assignment using worker cognitive ability and context to improve data quality in crowdsourcing.

Feb 2018 - Feb 2021

Supervised by Dr. Jorge Goncalves and Prof. Vassilis Kostakos.

BSc (Hons) Engineering, Dept. of Computer Science and Engineering, University of Moratuwa

Sri Lanka

First Class. Specialised in Computer Science and Engineering.

Oct 2011 - Apr 2016

## Work Experience

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Research Fellow, RMIT University

Melbourne, Australia

Working at the ARC Centre of Excellence for Automated Decision-Making and Society (ADM+S) and School of Computing Technologies (Academic Level B).

Mar 2021 - Present

Applied Scientist Intern, Amazon Web Services (AWS)

Seattle, US (Remote)

Worked for Amazon Science team overseeing Amazon GroundTruth, Mechanical Turk and Augmented AI (A2I).

Jun 2020 - Nov 2020

Casual Academic, The University of Melbourne

Melbourne, Australia

Tutor for courses including Machine Learning, Knowledge Technologies and Social Computing. Completed Melbourne Teaching Certificate for Graduate Researchers at Melbourne Centre for the Study of Higher Education.

Jul 2018 - Jun 2020

Manager - Usability Lab, Interaction Design Lab, The University of Melbourne

Melbourne, Australia

Supported a wide range of HCI research projects that involve technologies such as eye-tracking and sensing.

Jun 2018 - Jan 2020

Provided teaching support for courses including Evaluating User Experience and Usability Engineering.

Software Engineer, Sysco Labs (A Sysco Company)

Colombo, Sri Lanka

Worked in the data and analytics team managing a real time ETL solution, a data warehouse and data archival project. Principal engineer of customer profiling project that gather customer insights from over 2000 restaurants.

Apr 2016 - Feb 2018

Visiting Instructor, Dept. of Computer Science and Engineering, University of Moratuwa

Moratuwa, Sri Lanka

For Database Systems and Presentation Skills.

Apr 2015 - Feb 2016

Google Summer of Code Intern, WSO2

Colombo, Sri Lanka

Integrated a data cleaning tool to WSO2 Machine Learner by creating data transformations in Apache Spark to enhance the data preprocessing capabilities of the platform.

May 2015 - Sep 2015

Software Engineering Intern, WSO2

Colombo, Sri Lanka

Built an R extension for WSO2 Machine Learner to generate and execute machine learning algorithms in R. Created an application to monitor Jenkins build failures using WSO2 Complex Event Processor.

Oct 2014 - Apr 2015

## Peer-reviewed Publications

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- Hettiachchi, D.,** Schaekermann, M., McKinney, T., & Lease, M. (2021). The Challenge of Variable Effort Crowdsourcing and How Visible Gold Can Help. Proceedings of the ACM on Human-Computer Interaction, (**CSCW**). (to appear)
- Hettiachchi, D.,** Hayes, L., Goncalves, J., & Kostakos, V., (2021). Team Dynamics in Hospital Workflows: An Exploratory Study of a Smartphone Task Manager. JMIR Medical Informatics. (to appear)
- Hettiachchi, D.,** Arora, T., & Goncalves, J., (2021). Us vs. Them - Understanding the Impact of Homophily in Political Discussions on Twitter. In IFIP Conference on Human-Computer Interaction (**Interact'21**). Springer, Cham.(to appear)
- Hettiachchi, D.,** Sarsenbayeva, Z., Allison, F., van Berkel, N., Dingler, T., Marini, G., Kostakos, V., & Goncalves, J. (2020). "Hi! I am the Crowd Tasker" Crowdsourcing through Digital Voice Assistants. In Proceedings of the ACM SIGCHI Conference on Human Factors in Computing Systems 2020 (**CHI'20**) (pp. 1-14). ACM.
- Hettiachchi, D.,** van Berkel, N., Kostakos, V., & Goncalves, J. (2020). CrowdCog: A Cognitive Skill based System for Heterogeneous Task Assignment and Recommendation in Crowdsourcing. Proceedings of the ACM on Human-Computer Interaction, 4(**CSCW**).110:1-110:21.
- Hettiachchi, D.,** Wijenayake, S., Hosio, S., Kostakos, V., & Goncalves, J. (2020). How Context Influences Cross-Device Task Acceptance in Crowd Work. In Proceedings of the AAAI Conference on Human Computation and Crowdsourcing (**HCOMP'20**) (Vol. 8, No. 1, pp. 53-62). AAAI.
- Hettiachchi, D.,** van Berkel, N., Hosio, S., López, M. B., Kostakos, V., & Goncalves, J. (2020). Augmenting Automated Kinship Verification with Targeted Human Input. In **PACIS** (p. 141).
- Hettiachchi, D.,** van Berkel, N., Hosio, S., Kostakos, V., & Goncalves, J. (2019). Effect of Cognitive Abilities on Crowdsourcing Task Performance. In IFIP Conference on Human-Computer Interaction (**Interact'19**) (pp. 442-464). Springer, Cham.
- Hettiachchi, D.,** Goncalves, J. (2019). Towards Effective Crowd-Powered Online Content Moderation. In Proceedings of the 31st Australian Conference on Computer-Human Interaction (**OzCHI '19**) (pp. 342-346). ACM.
- van Berkel, N., Goncalves, J., **Hettiachchi, D.,** Wijenayake, S., Kelly, R. M., & Kostakos, V. (2019). Crowdsourcing Perceptions of Fair Predictors for Machine Learning: A Recidivism Case Study. Proceedings of the ACM on Human-Computer Interaction, 3(**CSCW**), 28:1-28:18.
- Sarsenbayeva, Z., van Berkel, N., **Hettiachchi, D.,** Jiang, W., Dingler, T., Velloso, E., Kostakos, V., Goncalves, J. (2019). Measuring the Effects of Stress on Mobile Interaction. Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (**IMWUT**), 3(1), 24:1-24:18.
- Wijenayake, S., **Hettiachchi, D.,** Hosio, S., Kostakos, V., Goncalves J. (2020). Effect of Conformity on Perceived Trustworthiness of News in Social Media. IEEE Internet Computing.

### Presentations and Invited Talks

- The Challenge of Variable Effort Crowdsourcing & How Visible Gold Can Help, Science Tech Presentations - AWS, Amazon, April 2021, Virtual.
- Task Assignment using Worker Cognitive Ability and Context to Improve Data Quality in Crowdsourcing, PhD Completion Seminar, The University of Melbourne, November 2020, Virtual.
- How Context Influences Cross-Device Task Acceptance in Crowd Work, HCOMP 2020, Virtual.
- CrowdCog: A Cognitive Skill based System for Heterogeneous Task Assignment and Recommendation in Crowdsourcing, CSCW 2020, Virtual.
- Hi! I am the Crowd Tasker, CHI Down Under 2020, Virtual.
- Effect of Cognitive Abilities on Crowdsourcing Task Performance, Interact 2019, Paphos, Cyprus.
- Enabling Creative Crowd Work through Smart Speakers, CHI 2019 Workshop, Glasgow, UK.
- Towards Effective Crowd-Powered Online Content Moderation, OzCHI 2019, Perth, Australia.
- Improving Crowdsourced Data Quality through Effective Task Routing, Confirmation Seminar, 2019, Melbourne, Australia.

## Teaching & Supervision

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### The University of Melbourne

- COMP 30027 - Machine Learning, Tutor, 2020
- INFO 90007 - Social Computing (Graduate Course), Tutor, 2019
- COMP 90049 - Knowledge Technologies (Graduate Course), Tutor, 2019
- INFO 10003 - Fundamentals of Interaction Design, Tutor, 2018
- INFO 90004 - Evaluating the User Experience (Graduate Course), Teaching Support, 2019
- INFO 30004 - Usability Engineering, Teaching Support, 2019
- INFO 20004 - Usability Evaluation Methods, Teaching Support, 2018-2019

### University of Moratuwa

- CS 3042 - Database Systems, Visiting Instructor, 2015
- CS 2963 - Presentation Skills, Visiting Instructor, 2015

### Supervised MSc/MIT Thesis

- Tanay Arora (MIT, co-supervisor), The University of Melbourne, 2020
- Dongdong Yu (MIT, co-supervisor), The University of Melbourne, 2020
- Leonardus Elbert Putra (MIT, co-supervisor), The University of Melbourne, 2019
- Yue Wang (MIT, co-supervisor), The University of Melbourne, 2019
- Yangyang HE (MSc, co-supervisor), The University of Melbourne, 2019
- Kening Wu (MIT, co-supervisor), The University of Melbourne, 2018

### Training

- Melbourne Teaching Certificate, Melbourne Centre for the Study of Higher Education, The University of Melbourne, 2019
- Teaching and Assessing Communications Skills Workshops, Melbourne School of Engineering, 2019

## Honors & Awards

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- 2018 Best Paper, 6th Annual Doctoral Colloquium, School of Computing and Information Systems, The University of Melbourne
- 2016 Dean's List, Faculty of Engineering, University of Moratuwa, Sri Lanka, (Semester 1,7 and 8)
- 2017 Intrapreneur Award, Sysco Labs
- 2016 Runners up, Hall of Fame for Engineering Excellence, Sysco Labs
- 2015 Inclusive Student Leader, Unilever Youth Forum, Sri Lanka

### Grants

- 2021 ECR Seed Funding (PI), ARC Centre of Excellence for Automated Decision-Making and Society (ADM+S) - AUD 10,000

### Scholarships

- 2019 Google Travel Scholarship, School of Computing and Information Systems, The University of Melbourne
- 2019 Melbourne School of Engineering Conference Travel Scholarship, The University of Melbourne
- 2018 Melbourne Research Scholarship, The University of Melbourne
- 2011 Mahapola Higher Education (Merit) Scholarship for Undergraduate Studies, University Grants Commission, Sri Lanka

### Competitions

- 2014 Runners Up, Spirallation Hackathon, World Conference on Youth
- 2013 52nd globally, IEEEExtreme 7.0 programming competition
- 2013 57th globally, Bitwise 2013 programming competition
- 2012 93rd globally, IEEEExtreme 6.0 programming competition

## Leadership & Volunteering

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### Academic Services

#### Technical Programme Committee Member

- Data Chair, ACM Conference on Human Factors in Computing Systems (CHI) 2019

#### Programme Committee Member

- Associate Chair, ACM Conference on Human Factors in Computing Systems (CHI) 2022
- ACM International Conference on Information and Knowledge Management (CIKM) 2021 - Short Paper Track
- 3rd Symposium on Biases in Human Computation and Crowdsourcing 2021
- AAAI Conference on Human Computation and Crowdsourcing (HCOMP) 2020
- Australian Conference on Human-Computer-Interaction (OzCHI) 2019

#### Organizing Committee Member

- Logistics Chair, Australian Conference on Human-Computer-Interaction (OzCHI) 2020
- Student Volunteer Chair, CHI DownUnder 2020

#### Conference and Journal Reviewing

- ACM Conference on Human Factors in Computing Systems (CHI) - 2020, 2021
- ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW) - 2018, 2019, 2020, 2021
- ACM Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT) - 2019, 2020, 2021
- AAAI Conference on Human Computation and Crowdsourcing (HCOMP) - 2020
- The Web Conference (WWW) - 2019
- IFIP TC.13 International Conference on Human-Computer Interaction (INTERACT) - 2019, 2021
- ACM International Conference on Information and Knowledge Management (CIKM) - 2021
- AAAI Conference on Web and Social Media (ICWSM) - 2020
- Pervasive and Mobile Computing Journal (PMC) - 2020, 2021
- Australian Conference on Human-Computer-Interaction (OzCHI) - 2019, 2020

#### Student Volunteer

- ACM Conference on Human Factors in Computing Systems (CHI) 2019
- Australian Conference on Human-Computer-Interaction (OzCHI) 2018

### Other Leadership Roles

- Committee Member 2018/19, School of Computing and Information Systems Graduate Researchers (CIS-GReS), The University of Melbourne.
- Vice President Public Relations 2017/18 & Sergeant at Arms 2016/17, Sysco Labs SL Toastmasters Club, Toastmasters International.
- Vice President Business Development 2015/16 & Local Committee President 2014/15, AIESEC in Sri Lanka.
- President - Student Chapter 2015/16, Old Royalists Engineering Professionals Association (OREPA).