Utkarsh Dwivedi

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Education

University of Maryland at College Park — College Park, MD
PhD in Information Studies — Aug. 2018 – Aug 2023 (Exp.)
GPA: 3.77/4.0

Indian Institute of Technology (IIT) Guwahati — Guwahati, India
Bachelor of Design — July. 2011 – May 2015
GPA: 8.15/10.0

Experience

Graduate Research Assistant — Jan 2019 – Present
Intelligent Assistive Machines (IAM) Lab — iSchool @ University of Maryland
Advisors: Elizabeth Bonsignore and Hernisa Kacorri

- I am interested in understanding how children train machine learning classifiers, called teachable machines.
- I explore how children use machine teaching interfaces through co-design sessions and what design guidelines we can uncover from their interactions.
- I investigate the designs of novel AI-infused applications, where the end-user can employ machine teaching to personalize their behavior.

Software Engineer, Game Designer — Sept. 2017 – July 2018
SplashLearn Inc. (Formerly SplashMath)
Manager: Umang Jain (VP)

- I designed, developed, and tested games for teaching math to children in grades K-5 (first 10 years of school).
- I worked with and led a team of game artists, designers, developers and subject matter experts (SME).

Research Scientist — July 2015 – August 2017
IBM Research India
Manager: Nitendra Rajput

- I built technologies for making math word problems easier to understand by generating automatic visualizations, improving usability of eye tracking technology, combining eye tracking and affective computing for novel captcha systems.
- I tackled the problem of early childhood vocabulary learning with Sesame Street using machine learning.

Peer-reviewed conference papers

[P4] **Utkarsh Dwivedi**, Jaina Gandhi, Raj A Parikh, Merijke Coenraad, Elizabeth Bonsignore, and Hernisa Kacorri. "Exploring Machine Teaching with Children". In: *Proceedings of the 2021 IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC)*. VL/HCC '21. Virtual Event: Institute of Electrical and Electronics Engineers (IEEE), 2021

[P3] Rie Kamikubo, **Utkarsh Dwivedi**, and Hernisa Kacorri. "Sharing Practices for Datasets Related to Wellness, Accessibility, and Aging". In: *Proceedings of the 23rd International ACM SIGACCESS Conference on Computers and Accessibility*. ASSETS '21. Virtual Event: Association of Computing Machinery (ACM), 2021

[P2] Aanand Nayyar, **Utkarsh, Dwivedi**, Karan Ahuja, Nitendra Rajput, Seema Nagar, and Kuntal Dey. "OptiDwell: Intelligent Adjustment of Dwell Click Time". In: *Proceedings of the 22nd International Conference on Intelligent User Interfaces*. IUI '17. Limassol, Cyprus: Association of Computing Machinery (ACM), 2017, pp. 193–204. ISBN: 9781450343480. DOI: 10.1145/3025171.3025202. URL: https://doi.org/10.1145/3025171.3025202

[P1] Ruhi Sharma Mittal, Seema Nagar, Mourvi Sharma, **Utkarsh, Dwivedi**, Prasenjit Dey, and Ravi Kokku. "Using a Common Sense Knowledge Base to Auto Generate Multi-Dimensional Vocabulary Assessments." In: *International Educational Data Mining Society* (2018)

Peer-reviewed workshop papers

[W2] Hernisa Kacorri, **Utkarsh, Dwivedi**, and Rie Kamikubo. "Data Sharing in Wellness, Accessibility, and Aging". In: *NeurIPS 2020 Workshop on Dataset Curation and Security*. NeurIPS '20. 2020

[W1] Andreas Veit, Michael Wilber, Rajan Vaish, Serge Belongie, James Davis, Vishal Anand, Anshu Aviral, Prithvijit Chakrabarty, Yash Chandak, Sidharth Chaturvedi, Chinmaya Devaraj, Ankit Dhall, **Utkarsh Dwivedi**, Sanket Gupte, Sharath N. Sridhar, Karthik Paga, Anuj Pahuja, Aditya Raisinghani, Ayush Sharma, Shweta Sharma, Darpana Sinha, Nisarg Thakkar, K. Bala Vignesh, Utkarsh Verma, Kanniganti Abhishek, Amod Agrawal, Arya Aishwarya, Aurgho Bhattacharjee, Sarveshwaran Dhanasekar, Venkata Karthik Gullapalli, Shuchita Gupta, Chandana G, Kinjal Jain, Simran Kapur, Meghana Kasula, Shashi Kumar, Parth Kundaliya, Utkarsh Mathur, Alankrit Mishra, Aayush Mudgal, Aditya Nadimpalli, Munakala Sree Nihit, Akanksha Periwal, Ayush Sagar, Ayush Shah, Vikas Sharma, Yashovardhan Sharma, Faizal Siddiqui, Virender Singh, Abhinav S., and Anurag. D. Yadav. "On Optimizing Human-Machine Task Assignments". In: *Proceedings of 3rd AAAI Conference on Human Computation and Crowdsourcing*. HCOMP '15. San Diego, USA, 2015

Peer-reviewed conference posters

[C5] Hernisa Kacorri, **Utkarsh, Dwivedi**, Sravya Amancherla, Mayanka Jha, and Riya Chanduka. "IncluSet: A Data Surfacing Repository for Accessibility Datasets". In: *The 22nd International ACM SIGACCESS Conference on Computers and Accessibility*. ASSETS '20. Virtual Event, Greece: Association of Computing Machinery (ACM), 2020. ISBN: 9781450371032. DOI: 10.1145/3373625.3418026. URL: https://doi.org/10.1145/3373625.3418026

[C4] **Utkarsh, Dwivedi**, Nitendra Rajput, Prasenjit Dey, and Blessin Varkey. "VisualMath: An Automated Visualization System for Understanding Math Word-Problems". In: *Proceedings of the 22nd International Conference on Intelligent User Interfaces Companion*. IUI '17 Companion. Limassol, Cyprus: Association of Computing Machinery (ACM), 2017, pp. 105–108. ISBN: 9781450348935. DOI: 10.1145/3030024.3040989. URL: https://doi.org/10.1145/3030024.3040989

[C3] **Utkarsh, Dwivedi**, Karan Ahuja, Rahul Islam, Ferdous A. Barbhuiya, Seema Nagar, and Kuntal Dey. "EyamKayo: Interactive Gaze and Facial Expression Captcha". In: *Proceedings of the 22nd International Conference on Intelligent User Interfaces Companion*. IUI '17 Companion. Limassol, Cyprus: Association of Computing Machinery (ACM), 2017, pp. 53–56. ISBN: 9781450348935. DOI: 10.1145/3030024.3038266. URL: https://doi.org/10.1145/3030024.3038266

[C2] Vishesh Kumar, Tuhina Dargan, **Utkarsh, Dwivedi**, and Poorvi Vijay. "Note Code: A Tangible Music Programming Puzzle Tool". In: *Proceedings of the Ninth International Conference on Tangible, Embedded, and Embodied Interaction*. TEI '15. Stanford, California, USA: Association of Computing Machinery (ACM), 2015, pp. 625–629. ISBN: 9781450333054. DOI: 10.1145/2677199.2688817. URL: https://doi.org/10.1145/2677199.2688817

[C1] **Utkarsh, Dwivedi** and Anirban Dasgupta. "Enabling Compliance of Environmental Conditions". In: *Proceedings of the 2015 Annual Symposium on Computing for Development*. DEV '15. London, United Kingdom: Association of Computing Machinery (ACM), 2015, pp. 79–80. ISBN: 9781450334907. DOI: 10.1145/2830629.2835223. URL: https://doi-org/10.1145/2830629.2835223

Patents

[I5] Roman Vaculin, **Utkarsh Dwivedi**, Karan Ahuja, Seema Nagar, and Kuntal Dey. "Directional Lesson Notes generator". DE112018001711T5 (Patents at USA, Great Britain, Germany, Canada, Japan). 2018. URL: https://patents.google.com/patent/DE112018001711T5/en

[I4] Prasenjit Dey, **Utkarsh Dwivedi**, Ravi Kokku, Seema Nagar, and Satyanarayana Venkata Nitta. "Facilitating vocabulary expansion". US20190080627A1 (USPTO[US Patent]). 2019. URL: https://patents.google.com/patent/US20190080627A1/en

[I3] Sreekanth L. Kakaraparthy, Vijay A. Kumar, Danish Contractor, Seema Nagar, Kuntal Dey, and **Utkarsh Dwivedi**. "Dynamicaly updating digital visual content via aggregated feedback". US20200226941A1 (USPTO[US Patent]). 2020. URL: https://patents.google.com/patent/US20200226941A1/en

[I2] Karan Ahuja, Kuntal Dey, **Utkarsh Dwivedi**, Seema Nagar, and Roman Vaculin. "System, method and computer program product for stateful instruction-based dynamic man-machine interactions for humanness validation". US10747859B2 (USPTO[US Patent]). 2017. URL: https://patents.google.com/patent/US10747859B2/en

[I1] Roman Vaculin, **Utkarsh Dwivedi**, Karan Ahuja, Seema Nagar, and Kuntal Dey. "Product placement optimization using blind-spot analysis in retail environments". US20200279283A1 (USPTO[US Patent]). 2020. URL: https://patents.google.com/patent/US20200279283A1/en

Graduate Consortium

[G1] **Utkarsh Dwivedi**. "Introducing Children to Machine Learning Through Machine Teaching". In: *Proceedings of the ACM Interaction Design and Children (IDC) conference 2021*. IDC '21. Virtual Event: ACM, 2021

Awards

Dean's Scholarship, School of Information Studies, University of Maryland, College Park, 2019.
Dean's Scholarship, School of Information Studies, University of Maryland, College Park, 2018.
Manager's Choice Award for Putting the Client first, IBM, 2016.
Budding Technical Talent Award for contributions to cognitive technologies, IBM, 2016.
Best Project, Fresher Undergrad Competition, Computer Science, 2012.
Best B-Plan, Kriti Technical Competition, IIT Guwahati, 2011.
Bronze Medal, International Young Mathematicians Conference, 2011

Technical Skills

Programming Languages: Python, Javascript
Libraries: Pytorch, Tensorflow, Unity 3D, Phaser.js, React.js, Node.js, MongoDB, D3.js

Professional Service

Reviewer ACM Special Interest Group on Computer-Human Interaction (CHI) 2022
Student Volunteer ACM Interaction Design and Children (IDC) 2021
Student Volunteer Human-Computer Interaction Lab (HCIL) University of Maryland Symposium
Reviewer ACM Interaction Design and Children (IDC) 2020 Full Paper
Reviewer ACM International Conference on Multimodal Interaction (ICMI) 2020 Short Paper
Reviewer ACM International Conference on Multimodal Interaction (ICMI) 2019 Short Paper
Reviewer ACM Interaction Design and Children (IDC) 2019 Works-In-Progress

Relevant Coursework

Graduate courses
Computational Linguistics
Visual learning and Recognition
Quantitative Research Methods
Educational Tech. Research
Data Visualization

Undergraduate courses
Computer Vision
Physical Computing
Interaction Design
Tangible User Interfaces
Usability Engineering