Utkarsh Dwivedi

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Education

University of Maryland — College Park, MD
PhD in Information Studies — *Aug. 2018 – Aug 2023*

Indian Institute of Technology (IIT) Guwahati — Guwahati, India
Bachelor's in Design — *July. 2011 – May 2015*

Experience

Graduate Research Assistant — Jan 2019 – Present
Intelligent Assistive Machines (IAM) Lab — iSchool @ University of Maryland
Advisor: Hernisa Kaccori

- Currently, I am investigating how children train machine learning classifiers, called teachable machines, and what design guidelines we can glean from their interactions.
- We explore how children use machine teaching interfaces through three co-design sessions.
- Children elicit designs of novel AI-infused applications, where the end-user can employ machine teaching to personalize their behavior

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

- For a year, 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 subject matter experts, game designers, game developers, and game artists.

Research Scientist (Formerly Software Engineer) — July 2015 – August 2017
Mobile Enabled Industry Solutions, IBM Research India — India
Manager: Nitendra Rajput

- Using AI technologies in Education and HCI for making math word problems easier to understand for students via their automatic visualizations, improving usability of eye tracking technology, combining eye tracking and affective computing for novel captcha systems.
- Our work with Sesame Street tackles the problem of early childhood vocabulary learning using novel machine learning algorithms.
- These projects resulted in multiple patents and publications in renowned conferences.

Peer-reviewed conference papers

[P3] 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 for Computing Machinery, 2017, pp. 193–204. ISBN: 9781450343480. DOI: 10.1145/3025171.3025202. URL: https://doi.org/10.1145/3025171.3025202

[P2] 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)

[P1] 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*. 2015. arXiv: 1509.07543 [cs.HC]

Peer-reviewed workshop papers

[W1] 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

Peer-reviewed conference posters

[C4] 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 for Computing Machinery, 2020. ISBN: 9781450371032. DOI: 10.1145/3373625.3418026. URL: https://doi.org/10.1145/3373625.3418026

[C3] **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 for Computing Machinery, 2017, pp. 105–108. ISBN: 9781450348935. DOI: 10.1145/3030024.3040989. URL: https://doi.org/10.1145/3030024.3040989

[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 for Computing Machinery, 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 for Computing Machinery, 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, WIPO). 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

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

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

Professional Service

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