Mustafa Doğa Doğan, PhD

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I am a Research Scientist at Adobe Research in Basel, Switzerland, working in the AI Experiences Lab. I received my PhD from Massachusetts Institute of Technology, where I worked in the Computer Science & Artificial Intelligence Laboratory. I build systems that make the world legible to AI: agent-driven tools for an AI-first information ecosystem, and unobtrusive metadata that gives physical objects a machine-readable identity.

EDUCATION

Ph.D. in Computer Science, Massachusetts Institute of Technology (MIT) — 2018-2024, Cambridge, MA
Thesis: Ubiquitous Metadata: Design and Fabrication of Embedded Markers for Real-World Object Identification and Interaction

M.Sc. in Electrical Engineering & Computer Science, Massachusetts Institute of Technology (MIT) — 2018-2020, Cambridge, MA
Past chair of the MIT European Club and Career Fair (2020-21)

B.Sc. in Electrical & Electronics Engineering, Boğaziçi University — 2014-2018, Istanbul, Turkey
Past chair of the IEEE Student Branch (2015-16)

Exchange student, Electrical and Computer Engineering, University of California, Los Angeles (UCLA) — 2017, Los Angeles, CA

RESEARCH EXPERIENCE

Research Scientist, Adobe — Aug 2024 - Present, Basel, Switzerland
AI Experiences Lab · Research Division

Visiting Postdoctoral Researcher, University of Tokyo — Jun 2024 - Jul 2024, Tokyo, Japan
User Interface Research Group · Graduate School of Information Science and Technology · Collaborator: Takeo Igarashi

Postdoctoral Researcher & Lecturer, Boğaziçi University — Feb 2024 - Jul 2024, Istanbul, Turkey
Cognitive Learning and Robotics (COLORS) Lab · Computer Engineering Department · Collaborator: Emre Ugur

PhD Student Researcher, Google — Oct 2023 - Mar 2024, Zurich, Switzerland
Augmented Reality (AR/VR) · Research Division · Advisors: David Kim, Mar Gonzalez-Franco

Visiting Postdoctoral Researcher, TU Delft — May 2023 - Jul 2023, Delft, Netherlands
Department of Sustainable Design Engineering · Faculty of Industrial Design Engineering · Collaborator: Zjenja Doubrovski

Research Scientist Intern, Adobe — May 2022 - Nov 2022, San Jose, CA
Document Intelligence Lab · Research Division · Advisors: Alexa Siu, Tong Sun

Research Assistant, Massachusetts Institute of Technology (MIT) — Aug 2018 - Dec 2022, Cambridge, MA
Computer Science and Artificial Intelligence Lab (CSAIL) · HCI Engineering Group · Advisor: Stefanie Mueller

Teaching Assistant, Massachusetts Institute of Technology (MIT) — 2020 - 2021, Cambridge, MA
Department of Electrical Engineering and Computer Science

Visiting Researcher, Massachusetts Institute of Technology (MIT) — Jun 2017 - Sep 2017, Cambridge, MA
Computer Science and Artificial Intelligence Lab (CSAIL) · HCI Engineering Group · Advisor: Stefanie Mueller

Undergraduate Researcher, UCLA — 2017, Los Angeles, CA
Electrical and Computer Engineering · Laboratory for Embedded Machines and Ubiquitous Robots · Advisor: Ankur Mehta

Undergraduate Researcher & Teaching Assistant, Boğaziçi University
Haptics & Robotics Lab · Intelligent Systems Lab · Advisors: Evren Samur, Işıl Bozma
Oct 2016 - Dec 2017
Istanbul, Turkey

Research Assistant, Max Planck Institute for Intelligent Systems
Physical Intelligence Department · Medical Millirobots Group · Advisor: Metin Sitti
Jun 2016 - Aug 2016
Stuttgart, Germany

HONORS AND AWARDS

- **Adobe Summit 2026 Best Sneak Award** · Project Face Off (Adobe Summit Sneaks '26)
- **2025 SXSW Innovation Awards Finalist** · XR-Objects (UIST '24)
- **Best Demo Honorable Mention** · Speed-Modulated Ironing (UIST '24)
- **Best Poster Honorable Mention** · SpecTrack (SIGGRAPH Asia '24 Poster)
- **Best Demo Honorable Mention** · InfraredTags (CHI '22)
- **Best Demo Honorable Mention** · DefeXtiles (UIST '20)
- **Best Medical Robotics Paper Award Nomination** · Soft Capsule Endoscope (ICRA '17)

PUBLICATIONS

26. Tim Rieder, Marian Schneider, Mario Truss, Vitaly Tsaplin, Alina Rublea, Sinem Dere, Francisco Sanz, Tobias Reiss, **Mustafa Doga Dogan**. **Project Face Off: Simulating A/B Testing Through Generative Audience Modeling and Predictive Evaluation.** Adobe Summit 2026 Sneaks. **Adobe Summit 2026 Best Sneak Award.**
25. Steffen Holter, Eunyee Koh, **Mustafa Doga Dogan***, Gromit Yeuk-Yin Chan*. **UXCascade: Scalable Usability Testing with Simulated User Agents.** 2026 ACM Symposium on User Interface Software and Technology (UIST).
24. Hsuanling Lee, Hal Sugiyama, Tian Min, Hanako Fujino, Mayuka Kuwana, Yuta Sugiura, **Mustafa Doga Dogan**, Liang He, Koya Narumi. **InvisIto: Weaving Unobtrusive Infrared Markers for Ubiquitous Textile Interaction.** 2026 ACM Symposium on User Interface Software and Technology (UIST).
23. Junling Wang, Hongyi Lan, Xiaotian Su, **Mustafa Doga Dogan**, April Yi Wang. **UI Remix: Supporting UI Design Through Interactive Example Retrieval and Remixing.** 2026 ACM Conference on Intelligent User Interfaces (IUI).
22. Xinru Wang, Zhuoran Lu, Shuai Ma, Ming Yin, Eunyee Koh, **Mustafa Doga Dogan**. **XAgen: Designing Explainability Support for Failure Detection and Correction in Multi-Agent Workflows.** Design and Artificial Intelligence (Elsevier), 2026. Also presented as a poster at ACM CHI 2026.
21. Oguz Arslan, Artun Akdogan, **Mustafa Doga Dogan**. **TinkerXR: In-Situ, Reality-Aware CAD and 3D Printing Interface for Novices.** 2025 ACM Symposium on Computational Fabrication (SCF).
20. Ryo Suzuki, Parastoo Abtahi, Chen Zhu-Tian, **Mustafa Doga Dogan**, Andrea Colaco, Eric J. Gonzalez, Karan Ahuja, Mar Gonzalez-Franco. **Programmable Reality.** 2025 Frontiers in Virtual Reality Journal, Volume 6.
19. Fatih Dogangun, Serdar Bahar, Yigit Yildirim, Bora Toprak Temir, Emre Ugur, **Mustafa Doga Dogan**. **RAMPA: Robotic Augmented Reality for Machine Programming by Demonstration.** 2025 IEEE Robotics & Automation Letters (RA-L).
18. Martin Feick, Xuxin Tang, Raul Garcia-Martin, Alexandru Luchianov, Roderick Wei Xiao Huang, Chang Xiao, Alexa Siu, **Mustafa Doga Dogan**. **Imprinto: Enhancing Infrared Inkjet Watermarking for Human and Machine Perception.** 2025 ACM CHI Conference on Human Factors in Computing Systems.
17. Ramya Iyer, **Mustafa Doga Dogan**, Maria Larsson, Takeo Igarashi. **XR-penter: Material-Aware and In Situ Design of Scrap Wood Assemblies.** 2025 ACM CHI Conference on Human Factors in Computing Systems.
16. Xinyue Gui, Ding Xia, Wang Gao, **Mustafa Doga Dogan**, Maria Larsson, Takeo Igarashi. **Draw2Cut: Direct On-Material Annotations for CNC Milling.** 2025 ACM CHI Conference on Human Factors in Computing Systems.

15. Yuki Tatsukawa, I-Chao Shen, **Mustafa Doga Dogan**, Anran Qi, Yuki Koyama, Ariel Shamir, Takeo Igarashi. **FontCraft: Multimodal Font Design Using Interactive Bayesian Optimization.** 2025 ACM CHI Conference on Human Factors in Computing Systems.
14. Riccardo Drago, Yotam Sechayk, **Mustafa Doga Dogan**, Andrea Sanna, Takeo Igarashi. **ImprovMate: Multimodal AI Assistant for Improv Actor Training.** 2025 ACM Designing Interactive Systems Conference (DIS) Work-in-Progress.
13. **Mustafa Doga Dogan**, Eric J. Gonzalez, Karan Ahuja, Ruofei Du, Andrea Colaco, Johnny Lee, Mar Gonzalez-Franco, David Kim. **Augmented Object Intelligence with XR-Objects.** 2024 ACM Symposium on User Interface Software and Technology (UIST). **2025 SXSW Innovation Awards Finalist.**
12. Mehmet Ozdemir, Marwa AlAlawi, **Mustafa Doga Dogan**, Jose Castro, Stefanie Mueller, Zjenja Doubrovski. **Speed-Modulated Ironing: High-Resolution Shade and Texture Gradients in Single-Material 3D Printing.** 2024 ACM Symposium on User Interface Software and Technology (UIST). **Best Demo Honorable Mention.**
11. Daniel Campos Zamora, **Mustafa Doga Dogan**, Alexa Siu, Eunyee Koh, Chang Xiao. **MoiréWidgets: High-Precision, Passive Tangible Interfaces via Moiré Effect.** 2024 ACM CHI Conference on Human Factors in Computing Systems.
10. Ziyang Chen, **Mustafa Doga Dogan**, Josef Spjut, Kaan Akşit. **SpecTrack: Learned Multi-Rotation Tracking via Speckle Imaging.** 2024 SIGGRAPH Asia Poster. **Best Poster Honorable Mention.**
9. **Mustafa Doga Dogan**, Raul Garcia-Martin, Patrick William Haertel, Jamison John O'Keefe, Ahmad Taka, Akarsh Aurora, Raul Sanchez-Reillo, Stefanie Mueller. **BrightMarker: 3D Printed Fluorescent Markers for Object Tracking.** 2023 ACM Symposium on User Interface Software and Technology (UIST).
8. **Mustafa Doga Dogan**, Vivian Hsinyueh Chan, Richard Qi, Grace Tang, Thijs Roumen Stefanie Mueller. **StructCode: Leveraging Fabrication Artifacts to Store Data in Laser-Cut Objects.** 2023 ACM Symposium on Computational Fabrication (SCF).
7. **M. Doga Dogan**, Alexa F. Siu, Jennifer Healey, Curtis Wigington, Chang Xiao, Tong Sun. **StandARone: Infrared-Watermarked Documents as Portable Containers of AR Interaction and Personalization.** 2023 ACM CHI Conference on Human Factors in Computing Systems LBW.
6. **M. Doga Dogan**, Ahmad Taka, Michael Lu, Yunyi Zhu, Akshat Kumar, Aakar Gupta, Stefanie Mueller. **InfraredTags: Invisible AR Markers & Barcodes Using Low-Cost, Infrared-Based 3D Printing & Imaging Tools.** 2022 ACM CHI Conference on Human Factors in Computing Systems. **Best Demo Honorable Mention.**
5. **M. Doga Dogan**, Steven Vidal Acevedo Colon, Varnika Sinha, Kaan Akşit, Stefanie Mueller. **SensiCut: Material-Aware Laser Cutting Using Speckle Sensing and Deep Learning.** 2021 ACM User Interface Software and Technology Symposium (UIST).
4. **M. Doga Dogan**, Faraz Faruqi, Andrew Day Churchill, Kenneth Friedman, Leon Cheng, Sriram Subramanian, Stefanie Mueller. **G-ID: Identifying 3D Prints Using Slicing Parameters.** 2020 ACM CHI Conference on Human Factors in Computing Systems.
3. Jack Forman, **Mustafa Doga Dogan**, Hamilton Forsythe, Hiroshi Ishii. **DefeXtiles: 3D Printing Quasi-Woven Fabric via Under-Extrusion.** 2020 ACM User Interface Software and Technology Symposium (UIST). **Best Demo Honorable Mention.**
2. Junichi Yamaoka, **Mustafa Doga Dogan**, Katarina Bulovic, Kazuya Saito, Yoshihiro Kawahara, Yasuaki Kakehi, Stefanie Mueller. **FoldTronics: Creating 3D Objects with Integrated Electronics Using Foldable Honeycomb Structures.** 2019 ACM CHI Conference on Human Factors in Computing Systems.
1. Donghoon Son, **Mustafa Doga Dogan**, Metin Sitti. **Magnetically Actuated Soft Capsule Endoscope for Fine-Needle Aspiration.** 2017 IEEE International Conference on Robotics and Automation (ICRA). **Best Medical Robotics Paper Award Nomination.**

* Equal contribution.

PATENTS

Granted

- Alexa Fay Siu, Tong Sun, **Mustafa Doga Dogan**, Jennifer Anne Healey, Curtis Michael Wigington. **Generating virtual objects from embedded code.** US 12,430,813 B2, granted Sep 2025. Adobe.

Pending (published applications)

- Chang Xiao, Eunyee Koh, Daniel Campos Zamora, Alexa Fay Siu, **Mustafa Doga Dogan**. **Determining movement of passive physical interface controls.** US 2026/0340839 A1, published Oct 2026. Adobe.
- Ronald Oribio, Niccolo Toccane, **Mustafa Doga Dogan**, Alina Rublea, Meryll Blanchet, Tobias Reiss, Aanisha Bhattacharyya, Yaman Kumar. **Content optimization using artificial intelligence agents.** US 2026/0278245 A1, published Sep 2026. Adobe.
- Paul-Bogdan Jurcut, **Mustafa Doga Dogan**, Lenard-Levente Palko, Christian Meyer, Adrian Kozma. **Disentangling design elements for code component generation.** US 2026/0252788 A1, published Aug 2026. Adobe.
- **Mustafa Doga Dogan**, Mar Gonzalez-Franco, David Kim. **Context menus for physical objects.** WO 2025/184554 A1, published Sep 2025. Google.

TEACHING

- CMPE 58K: Engineering Interactive Systems (Spring 2024, first offering), Boğaziçi University
- 6.859: Interactive Data Visualization (Spring 2021), Massachusetts Institute of Technology (MIT)
- 6.S897: Academic Job Search Seminar (Fall 2021), Massachusetts Institute of Technology (MIT)
- 6.810: Engineering Interactive Technologies (Fall 2020), Massachusetts Institute of Technology (MIT)
- EE142: Introduction to Digital Systems (Fall 2016 & Fall 2017), Boğaziçi University

PROFESSIONAL SERVICE

Organizing committee

- Steering Committee Member: ACM SCF
- Conference Chair: ACM SCF (’26)
- Posters Chair: ACM UIST (’22, ’23)
- Student Volunteer Chair: ACM UIST (’19, ’20)
- Social Events Chair: ACM UIST (’21)
- Organizer: ACM CHI Personal Fabrication Community Event (’20)

Program committee

- Subcommittee Chair, ACM DIS, “Artifacts and Systems” (’26)
- Associate Chair, ACM CHI (’27; ’26, “Blending Interaction: Engineering Interactive Systems & Tools” subcommittee)
- Associate Chair, ACM UIST (’25, ’26)
- Associate Chair, ACM TEI (’24)

Reviewing

- ACM CHI (’20, ’21, ’22, ’23)
- ACM UIST (’21, ’22)
- ACM SIGGRAPH Asia (’22)
- IEEE ICRA (’21)
- ACM TEI (’21)
- IEEE ISMAR (’20)
- ACM EICS (’21)
- ACM IDC WIP (’21)
- IEEE Sensors Journal (’20, ’21)

INVITED TALKS

This list is not up to date.

- MIT Sloan, Machine Intelligence for Manufacturing and Operations (MIMO) Research Forum (Dec ’22)
- University of Maryland HCIL BBL Speaker Series (Oct ’22)
- Samsung America Research, Mountain View (Jul ’22)

- UC San Diego Design Lab (Aug ’22)
- Stanford University HCI Lunch Seminar (Jun ’22)
- University College London, Virtual Graphics and Computer Graphics Seminar Series (Feb ’22)
- MIT Open Learning, MIT Horizon Talks (Mar ’22)
- University of Chicago, Human-Computer Integration Lab (Sep ’19)

SELECTED PRESS

- **Project Face Off**: Adobe Research News, The AI Economy, B&T Australia
- **XR-Objects**: Google Research Blog
- **Speed-Modulated Ironing**: MIT News, TU Delft News, 3D Printing Industry, 3DPrint.com
- **BrightMarker**: MIT News, Hackster.io, Hackaday, SwissCognitive
- **StructCode**: MIT News, Hackster.io
- **InfraredTags**: Popular Science, New Scientist, MIT News
- **SensiCut**: The Next Web, Photonics.com, MIT News
- **G-ID**: 3DPrint.com, Hackster.io, ITmedia
- **DefeXtiles**: Gizmodo, MIT News
- **FoldTronics**: Hackster.io
- **Soft Capsule Endoscope**: Engadget, IEEE Spectrum