Rubaiat Habib Kazi

Product Designer & HCI Researcher· AI / Emerging Tech / Animation
Sr. Research Scientist, Adobe Research

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rubaiat [dot] habib [at] gmail.com
rubaiathabib.me

Overview

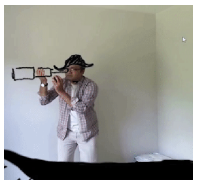
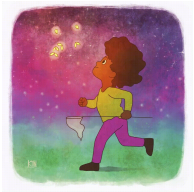
My research interest lies in developing tools, interactions, and frameworks that facilitate powerful ways of thinking, design, and communication. I approach research with an interdisciplinary blend of artistic, scientific, design, and engineering methodologies. In collaboration with research, design, and engineering, my research in dynamic drawings and animation turned into award winning products & features (eg, Apple App of the Year winner Autodesk Sketchbook Motion, Emmy award winning Adobe Character Animator, Adobe Fresco, SandCanvas) that reach a global audience. I've published 35+ papers in top HCI/Graphics venues such as ACM CHI/UIST/SIGGRAPH and filed 50+ patents.

Education

2009-2014 **PhD, Computer Science**
National University of Singapore (Supervisor: Dr. Shengdong Zhao)

2003-2007 **BSc, Computer Science and Engineering**
Bangladesh University of Engineering and Technology (BUET)

Selected Projects & Product Impact

					
(2022-now) Co-founded and co-led an internal initiative on **AI interfaces for motion:** interal prototypes and four papers (several award winning)	(2020-2022) Co-founded and co-led an internal initiative on interactive graphics for live video — resulted four research papers and internal prototyping and technical stack.	(2019-2021) Design and implementation of the inaugoral motion features in Adobe Fresco (painting tool). Shipped in 2021, and recognized with several industry awards in 2022.	(2018-2020) Contributed to Motion lines and secondary effects in *Adobe Character Animator*. Was part of the *2019 Emmy Engineering Award* winning team.	(2013-2016) Led the design and development of *Autodesk Sketchbook Motion* that brings life to drawings with animated textures. Winner of *Apple App of the year 2016.* This app was built upon our research paper Draco.	(2010-2012) Led the design and development of iPad app *SandCanvas* to create sand animation (funded by NUS Entrepreneurship grant). This app was built upon our research paper SandCanvas.

Experience

11/2017-

Sr. Research Scientist
Adobe Research (Seattle, US)

Design, prototype, and test novel user interfaces for design, animation, & communication. Advancing the state of the art interaction techniques in communication and animation tools in AR/VR. Consult with product teams, supervise PhD students, and publish in top-tier CS conferences. Contributed to Emmy award winning Adobe Character Animator and the design and implementation of Adobe Fresco Motion/Animation features. Co-Lead several internal research initiatives, related to live video communication, AI interfaces, and agentic interactions. To date, published **20+** full papers at top tier conferences and filed **30+** patents.

5/2013-11/2017

Principal Scientist
Autodesk Research (Toronto, CA)

Led the award-winning research initiative – Project Draco. Made dynamic graphics as easy as sketching, and a powerful tool for thinking, design, and communication. This research resulted to an award winning (Apple app of the year 2016) commercial product - Autodesk Sketchbook Motion. Routinely consulted with product teams, published in top-tier academic conferences, supervised PhD students as research interns, and advocated the thrilling potential of dynamic drawings as a new, powerful medium. During this period, published **9** papers at CHI (5), UIST (3), and ACM Interactions(1), and filed 10+ patents.

2012

Research Intern
Microsoft Research (Redmond, US)

Worked with Bongshin Lee. Designed and developed SketchStory, a novel storytelling tool with data through freeform sketching. This worked appeared as a full paper to InfoViz 2013, and featured in Microsoft TechFest 2013 keynote session.

2011

Visiting Researcher
Japan Science and Technology Agency (Tokyo, JAPAN)

Worked with Takeo Igarashi. Designed and developed Vignette, a style preserving sketching tool for pen-and-ink illustration with built in texture synthesis capabilities. This worked appeared as a full paper to CHI 2014, and as a talk to SIGGRAPH 2014.

2009

Research Intern
National University of Singapore (Singapore)

Developed a novel shape signature to represent, analyse and correlate hand drawn characters to perceived psychological traits.

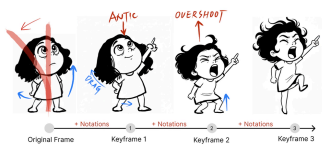
12/2007-3/2009

Software Engineer
Code71 Inc. (Dhaka, BANGLADESH)

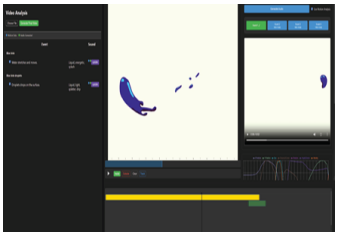
Designed, developed, and tested web-based agile project management tool ScrumPad, social community website, and web-based loan management system.

Publications

In Human–Computer Interaction, CHI, UIST, SIGGRAPH, CSCW, and InfoVis are amongst the top-tier publication venues. Quick summary: Best Paper & Honorable Mention Awards (8), Best Talk Awards (2), CHI (18), UIST (13), SIGGRAPH (1), CSCW (1), InfoVis (1), and other venues (4).

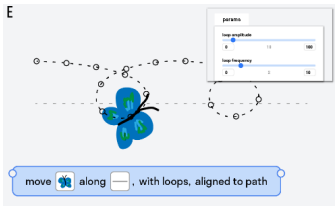


🏆 Notational Animating: An Interactive Approach to Creating and Editing Animation Keyframes
Xinyu Shi, Li-Yi Wei, Nanxuan Zhao, Jian Zhao, R H Kazi
CHI 2026
***Best Paper Honorable Mention Award*



🏆 MoSound: An Interactive Tool for Generative Sound Design in Motion Graphics
Jialin Huang, Prem Seetharaman, Tim Langlois, Li-Yi Wei, R H Kazi, Yotam Gingold
CHI 2026
***Best Paper Honorable Mention Award*

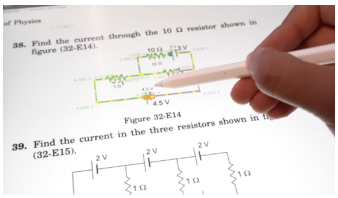
MapStory: Prototyping Editable Map Animations with LLM Agents
A Gunturu, B Pearman, K Ihara, M Faraji, B Wang, R H Kazi, R Suzuki
UIST 2025



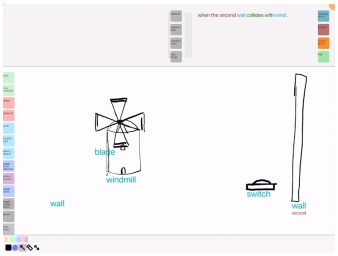
🏆 Narrative Motion Blocks: Combining Direct Manipulation and Natural Language Interactions for Animation Creation
Sam Bourgault, Li-Yi Wei, Jennifer Jacobs, R H Kazi
DIS 2025
Project Page
***Best Paper Award*

LogoMotion: Visually-Grounded Code Synthesis for Creating and Editing Animation
Vivian Liu, R H Kazi, Li-Yi Wei, Matthew Fisher, Timothy Langlois, Seth Walker, Lydia Chilton
CHI 2025
Project Page

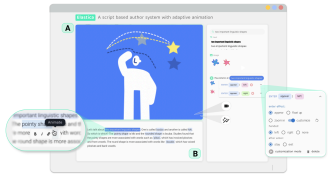
Video2MR: Automatically Generating Mixed Reality 3D Instructions by Augmenting Extracted Motion from 2D Videos
Keiichi Ihara, Kyzyl Monteiro, Mehrad Faridan, R H Kazi, Ryo Suzuki
IUI 2025
Paper



🏆 Augmented Physics: Creating Interactive and Embedded Physics Simulations from Static Textbook Diagrams
Aditya Gunturu, Yi Wen, Nandi Zhang, Jarin Thundathil, R H Kazi, Ryo Suzuki
UIST 2024
Project Page
***Best Paper Award*



DrawTalking: Building Interactive Worlds by Sketching and Speaking
K Rosenberg, R H Kazi, Li-Yi Wei, Haijun Xia, Ken Perlin
UIST 2024
Project Page



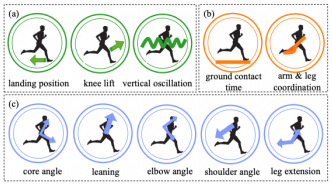
Elastica: Adaptive Live Augmented Presentations with Elastic Mappings Across Modalities
Yining Cao, R H Kazi, Li-Yi Wei, Deepali Aneja, Haijun Xia
CHI 2024
Paper | Video

Automated Conversion of Music Videos into Lyric Videos
Jiaju Ma, Anyi Rao, L Wei, R H Kazi, V Shin, Maneesh Agrawala
UIST 2023
Project page

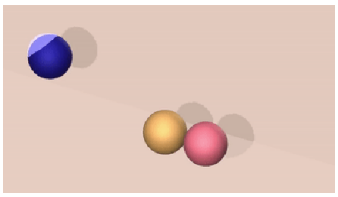
PoseVEC: Authoring Adaptive Pose-aware Effects Using Visual Programming and Demonstrations
Yongqi Zhang, C Nguyen, R H Kazi, Lap-Fai Yu
UIST 2023
Project page

VideoDoodles: Hand-Drawn Animations on Videos with Scene-Aware Canvases
E Yu, K Blackburn-Matzen, C Nguyen, O Wang, R H Kazi, A Bousseau
SIGGRAPH 2023
Project page

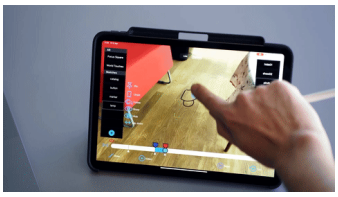
RealityTalk: Real-Time Speech-Driven Augmented Presentation for AR Live Storytelling
J Liao, A Karim, SS Jadon, R H Kazi, R Suzuki
UIST 2022
Project page



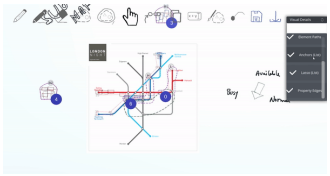
PoseCoach: A Customizable Analysis and Visualization System for Video-based Running Coaching
J Liu, N Saquib, Z Chen, R H Kazi, LY Wei, H Fu, CL Tai
IEEE TVCG 2022



🏆 A Layered Authoring Tool for Creating Stylized 3D Animations
Jiaju Ma, LiYi Wei, R H Kazi
CHI 2022
***Best Paper Honorable Mention Award*
[Project Page]

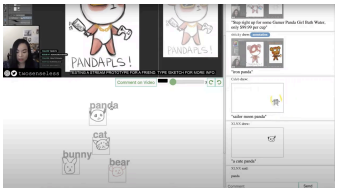


Rapido: Prototyping Interactive AR Experiences through Programming by Demonstration
G Leiva, J E Grønbæk, C Klokmose, C Nguyen, R H Kazi, P Asente
UIST 2021

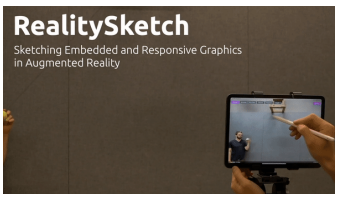


Constructing Embodied Algebra by Sketching
N Saquib, R H Kazi, L Wei, Gloria Mark, Deb Roy
CHI 2021
[Project Page]

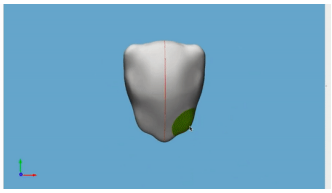
Beyond Show of Hands: Engaging Viewers via Expressive and Scalable Visual Communication in Live Streaming
John Chung, Hijung Valentina Shin, Haijun Xia, L Wei, R H Kazi
CHI 2021
[Project Page]



StreamSketch: Exploring Multi-Modal Interactions in Creative Live Streams
Zhicong Lu, R H Kazi, L Wei, M Dontcheva, K Karahalios
CSCW 2021



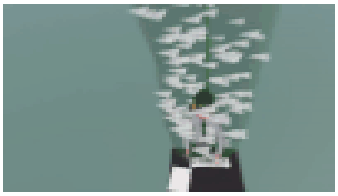
🏆🏆 RealitySketch: Embedding Responsive Graphics and Visualizations in AR through Dynamic Sketching
Ryo Suzuki, R H Kazi, L Wei, S Diverdi, W Li, D Leithinger
UIST 2020
***Best Paper Honorable Mention Award*
***Best Demo Honorable Mention Award*
***SIGGRAPH Asia 2021 Real-time live*
[Project Page]



Autocomplete Keyframe Sculpting
Mengqi Peng, L Wei, R H Kazi, V Kim
UIST 2020
[Project Page]

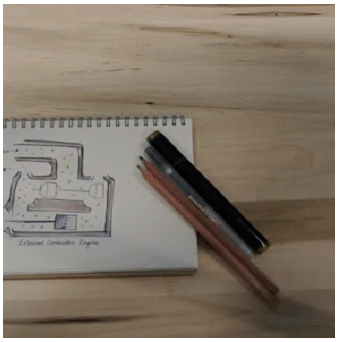
Slicing Volume: Hybrid 3D/2D Multi target Selection Technique for Dense Virtual Environments
R Montano-Murillo, C Nguyen, R H Kazi, S Subramanian, S Diverdi, D Martinez-Plasencia
IEEE VR 2020

A-Replay: Rapid AR Video Prototyping Using Sketches and Enaction
G Leiva, C Nguyen, R H Kazi, P Asente
CHI 2020
[Project] [Paper] [Adobe Max Demo]

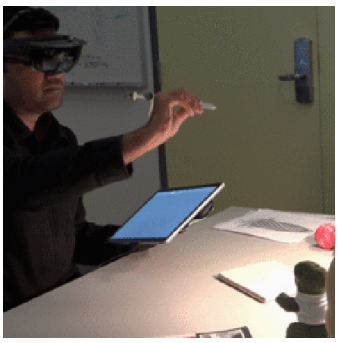


MagicalHands: Mid-air Hand Gestures for Animating in VR
R Arora, R H Kazi, D Kaufman, W Li, K Singh
UIST 2019
[Project Page]

Interactive Body-driven Graphics for Augmented Video Performances
N Saquib, R H Kazi, L Wei, W Li
CHI 2019
[Project Page]

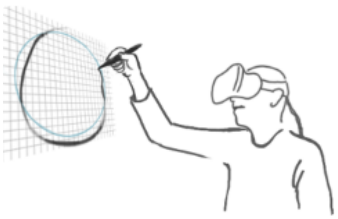


A Mixed-Initiative Interface for Animating Static Pictures
N Willett, R H Kazi, M Chen, G Fitzmaurice, A Finkelstein, T Grossman
UIST 2018
[Project] [PDF] [Video]



SymbiosisSketch: Combining 2D and 3D Sketching for Designing Detailed Objects in Situ
R Arora, R H Kazi, T Grossman, G Fitzmaurice, K Singh
CHI 2018
[Project] [PDF] [Video]

DreamSketch: Early stage 3D Design & Exploration with Sketching and Generative Design
R H Kazi, T Grossman, H Cheong, A Hashemi, G Fitzmaurice
UIST 2017
[Project] [PDF] [Video]



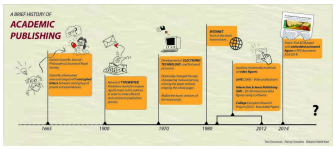
An Experimental Evaluation of Sketching on Surfaces in VR
R Arora, R H Kazi, F Anderson, T Grossman, K Singh, G Fitzmaurice
CHI 2017
[PDF]

Energy Brushes: Interactive Tools for Illustrating Stylized Elemental Dynamics

J Xing, R H Kazi, T Grossman, L Wei, J Stam, G Fitzmaurice

UIST 2016

[Project] [PDF] [Video]



Bringing Research Articles to Life with Animated Figures

T Grossman, F Chevalier, R H Kazi

ACM Interactions Article 2016

Motion Amplifiers: Sketching Dynamic Illustrations Using the Principles of 2D Animation

R H Kazi T Grossman, N Umetani, G Fitzmaurice

CHI 2016

[Project] [PDF] [Video]

*** SIGGRAPH 2016 Studio Talks*

ChronoFab: Fabricating Motion

R H Kazi, T Grossman, C Mogk, R Schmidt, G Fitzmaurice

CHI 2016

[Project] [PDF] [Video]

Kitty: Sketching Dynamic and Interactive Illustrations

R H Kazi, F Chevalier, T Grossman, G Fitzmaurice

UIST 2014

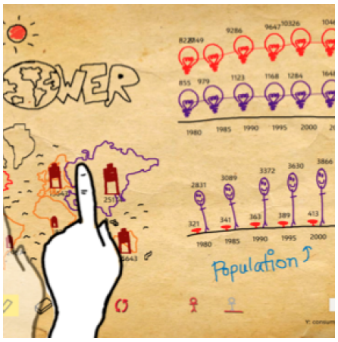
[Project] [PDF] [Video]

***UIST Best Talk Award*

***Invited to SIGGRAPH in UIST Reprise session*

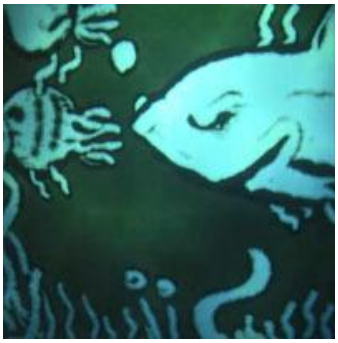
🏆🏆🏆🏆 Draco: Bringing Life to Illustrations with Kinetic Textures
R H Kazi, F Chevalier, T Grossman, S Zhao, G Fitzmaurice
CHI 2014
[Project] [PDF] [Video]
***CHI Best Paper Honorable Mention Award*
***CHI Best Talk Award*
***ACM Golden Mouse Award*

***iPad app available in Apple store*
*****Apple App of the Year 2016 by Apple App Store editors***



SketchStory: Telling more Engaging Stories with Data Through Freeform Sketching
B Lee, R H Kazi, G Smith
Infovis 2013
[Project] [PDF] [Video]
*** Showcased in Microsoft TechFest Keynote*

Vignette: Interactive Texture Design and Manipulation with Freeform Gestures for Pen-and-Ink Illustration
R H Kazi, T Igarashi, S Zhao, R C Davis
CHI 2012
[Project] [PDF] [Video]
*** SIGGRAPH 2012 Talks*



🏆🏆 SandCanvas: A Multi-touch Art Medium Inspired by Sand Animation
R H Kazi, K C Chua, S Zhao, R C Davis, and K L Low
CHI 2011
[Project] [PDF] [Video]
***CHI Best Paper Honorable Mention Award*
***ACM Golden Mouse Award*
*** SIGGRAPH 2011 Studio Talks*

***Received NUS Entrepreneurship Grant to develop an App*
***iPad App showcased in Singapore TechInoovation Keynote (2012)*

Grants, Honors, and Awards

ACM CHI Best Paper Honourable Mention *2026*

ACM CHI Best Paper Honourable Mention *2011*

ACM CHI Best Paper Honourable Mention *2026*
ACM DIS Best Paper Award *2025*
ACM UIST Best Paper Award *2024*
ACM CHI Best Paper Honourable Mention *2022*
ACM UIST Best Demo Honorable Mention *2020*
ACM UIST Best Paper Honorable Mention *2020*
Emmy Engineering Award *2019*
APPLE best iPad app of the year *2016*
ACM UIST People's Choice Best Talk Award *2014*
ACM CHI People's Choice Best Talk Award *2014*
ACM CHI Golden Mouse Award *2014*
ACM CHI Best Paper Honourable Mention *2014*
ACM CHI Doctoral Consortium Award *2013*
NUS Research Achievement Award *2011, 2012*
Microsoft Research Asia Fellowship *2011*
ACM CHI Golden Mouse Award *2011*
NUS Entrepreneurship Grant (PI) *2011*
NUS Research Scholarship *2009 - 2013*
BUET Merit Scholarship *2007*
BUET Dean's Scholarship *2007-08*
BUET Runner-up, website development competition for CSE department *2005*
BUET 1st in poster design and sketch *2003*
Dhaka Education Board HSC Merit Scholarship, Bangladesh *2002-2007*
Rajshahi Education Board SSC Merit Scholarship, Bangladesh *2000-02 (stood 11th among 350,000 students)*

Invited Talks

ACM Creativity & Cognition Keynote *2024*
UCSD Design Lab Talks *2024*
Stanford HCI Seminar *Virtual 2022*
SIGGRAPH Education Forum Panelist *Virtual 2021*
UC Calgary *Virtual 2021*
CMU Career Panelist *Virtual 2021*
UC Boulder ATLAS seminar *Virtual 2020*
BUET ACM Chapter *Virtual 2020*
Chinese CHI (Keynote) *Montreal 2018*
ACM SIGGRAPH Dhaka Chapter (Keynote) *2018*
San Francisco Design Week *2017*
ACM CHI Stories *Denver 2017*
MIT HCI Seminar Series *Boston 2017*
University of Rochester (Seminar) *Rochester 2016*
Toronto User Experience (Speaker) *Toronto 2016*
IEEE-GEM Conference (Panellist) *Toronto 2015*
Princeton University (Guest lecture) *2015*
Google Research *Mountain View 2015*
Yale University (Guest lecture) *New Haven 2015*
ArtSci Saloon (Panellist) *Toronto 2015*
ADOBE Research *San Jose 2014*
BUET Seminar on Innovation *Dhaka 2014*
MoHCI Workshop (Keynote speaker) *Dhaka 2014*
University of Toronto *2013*
University of Waterloo *2013*
Microsoft Research *Redmond 2012*
ADOBE Research *San Jose 2012*
Institute of InfoComm Research *Singapore 2012*
Ahsanullah University of Science & Tech *Dhaka 2011*
The University of Tokyo *Tokyo 2011*
Institute of InfoComm Research *Singapore 2011, 2012*
Tertiary Tech Conference *Singapore 2010*
National University of Singapore (Guest lecturer) *2010-2013*

Exhibitions & Demos

Adobe Max 2024 *FL*
SIGGRAPH Asia Real-time live *2021*
UIST 2020 *virtual*
Adobe Max 2019 *LA*
UIST 2019 Demo *Louisiana*
UIST 2016 Demo *Tokyo*
Autodesk Design Summit *San Francisco 2015*
SIGGRAPH Studio 2014 *Vancouver*
CHI Interactivity *Toronto 2014*
ArtScience Museum *Singapore 2013*
TechInnovation *Singapore 2012*
CHI Interactivity *Austin, Texas 2012*
InnovFest (TCF) *Singapore 2012*
Technology Commercialization Forum *Singapore 2010*

Autodesk Gallery Design Night *San Francisco 2015*
Autodesk University *Las Vegas 2014*

Sand Animation Performer: Toa Payoh Methodist Church *Singapore 2010*

Professional Activities

Program committee

- **CHI** *2018, 2020, 2025, 2026*
- **UIST** *2015, 2016, 2020, 2022*
- **CHI Workshops, CHI WIP** *2015;*
- **i3D Symposium** *2015;*
- **APSIPA** *2010, 2011;*
- **APCHI** *2013;*
- **ICCIT-WHAT** *2013;*
- **MoHCI (Bangladesh)** *2014;*

Workshop Organizer

- **SIGGRAPH Asia** *2014*

Reviewer

- **UIST** *2010, 2012 -*
- **CHI** *2010 -*
- **SIGGRAPH Asia** *2012, 2014-*
- **SIGGRAPH** *2013-*
- **NordCHI** *2012*

Student Volunteer

- **SIGGRAPH Asia** *2010*;
- **CHI** *2011*;
- **InfoVis** *2013*

Press *(selected)*

- ***Engadget***. *2021. "Adobe is adding motion, reference layers, and more to its fresco painting app."*
- ***TechXplore***. *2021. "RealitySketch: An AR interface to create responsive sketches."*
- ***GeekCulture***. *2019. "Adobe MAX 2019: Eleven Exciting "Sneaks" Into The Future of AI-powered Apps"*
- ***VentureBeat***. *2019. "Adobe Max Sneaks feature AI photography, animation, and audio tools"*
- ***2 Minutes Paper***. *2019. "Augmenting Reality Presentations are coming" 2019*
- ***Synced***. *2019. "MIT & Adobe Introduce Real Time AR Tool for Storytelling" 2019*
- ***Science Daily***. *2018. "New tools streamline the creation of moving pictures" 24th Oct*
- ***UofT News***. *2018. "Autodesk and University of Toronto researchers have developed **SymbiosisSketch**, a software that combines 2D and 3D sketching for detailed designing of 3D objects".*
- ***Sketchbook Blog*****.** *2017. My interview on Sketchbook, and the future of animated drawings.*
- ***Vizworld***. *2017. My Interview – "Dynamic drawings from Autodesk offers animation with no timeline".*
- ***The Financial Express***. *2016. Apple selects "Best of 2016"*
- ***CGChannel***. *2016. "Motion Amplifiers May Let Non-Animators do Disney Style Animation"*
- ***CGChannel***. *2016. "Autodesk releases Sketchbook Motion"*
- ***3Ders.*** *2016. "Autodesk's ChronoFab Creates The Illusion of Motion to 3D printing"*
- ***3DPrint.*** *2016. "Smoke, Spin, Gallop and Go in 3D print with Autodesk's new ChronoFab modeling tool"*
- ***FastCoDesign***. *2014. "Autodesk's Draco Lets you Animate Illustrations in Seconds" 28th May.*
- ***Animation World Network (AWN)***. *2014. "Draco brings Illustrations to life" 3rd June.*
- ***HOW Design*** *2014. "Draco: Bringing Illustrations to Life with Kinetic Textures" 21st April.*
- ***BBC News*** *2013. "Microsoft unveils self-sketching whiteboard prototype" 5th March.*
- ***The Verge*** *2013. "Microsoft SketchInsight lets you build a story with interactive sketches" 4th March.*
- ***WIRED*** *2013. "Microsoft whiteboard unites big data, predictive drawing and autocorrect" 5th March.*

- ***ZNET*** *2013. "SketchInsight whiteboard turns data into graphics for presentations" 5th March.*
- ***VIZTHINKER*** *2013. "Microsoft Takes Graphic Recording to a New Level with SketchInsight" 5th March.*
- ***DAILY PROTHOM-ALO*** *2013. "Whiteboard sketches itself" 5th March.*
- ***DIGITAL SPY*** *2013. "Microsoft unveils SketchInsight whiteboard that can think for itself." 5th March.*
- ***SILICONREPUBLIC*** *2013. "Microsoft unveils SketchInsight Interactive Whiteboard Prototype." 5th March.*
- ***THE DAILY NEW AGE*** *2012. "Interview with Kazi Rubaiat Habib" 4th Nov.*

PhD Committee

Nazmus Saquib, *MIT Media Lab 2020*

Research Interns / PhD students Supervised

[as a primary or secondary mentor]*

Xinyu Shi* *(U Waterloo) 2025*
Liwenhan Xie* *(HKUST) 2025*
Eric Chen *(Brown U, now PhD student at Cornell Tech) 2025*
Aditya Gunturu *(U Calgary) 2024*
Sam Bourgault* *(UCSB, now postdoc at Princeton) 2024*
Jialin Huang* *(GMU) 2024*
Ted Chao *(GMU) 2024*
Vivian Liu* *(Columbia U, now at Autodesk Research) 2023*
Rima Cao* *(UCSD) 2022*
Emilie Yu* *(INRIA) 2022*
Yongqi Zhang *(GMU) 2022*
Tianyi Wang* *(Purdue U, now at Meta Reality Labs) 2021*
Karl Rosenberg* *(NYU) 2021*
Jiaoju Ma *(Brown U, now PhD student at Stanford) 2021*
Jiahao Nick Li *(UCLA, now at Apple) 2021*
John Chung* *(U of Michigan, now Researcher at MidJourney) 2020*
Joy Zhang* *(Cornell U) 2020*
Ryo Suzuki* *(UC Boulder, now Assistant Professor at UC Boulder) 2019*
Zhicong Lu* *(U of Toronto, now Assistant Professor at GMU) 2019*
German Leiva *(now Assistant Professor at Aarhus University) 2019-2020*
Nazmus Saquib* *(MIT, now Founder of Tero Labs) 2018-2020*
Fengjiao Peng* *(MIT, now Co-founder at Shortbread) 2018*
Mengqi Peng *(U of Hong Kong, now researcher at Tencent) 2018 - 2020*
Roberto Murillo *(U of Sussex, now at UCL) 2018*
Jun Xing* *(U of Hong Kong, founder of SemiGraph) 2016*
Rahul Arora* *(U of Toronto, now at Meta Reality Labs) 2017-2020*
Vicky Bilbily* *(U of Toronto) 2017*
Nora Willett* *(Princeton, now at PIXAR Research) 2017*

Patents

50+ patents filed, 20+ granted [Patents Justia Link]

Leadership

Founding Member, Dynamic Abstraction Research group
Chief Advisor, ACM SIGGRAPH Dhaka Chapter *2017-2020*
President, Batayon Foundation (US-based non-profit organization) *2016-2021*
NUS Student Entrepreneurship Grant (PI) *2011-12*
Co-Editor, Graduate Students Survival Guide, NUS *2010*
Co-Editor, Kopat (Term magazine, BUET) *2005-06*

Graphic Novel

Designing New Digital Art and Communication Media Inspired by Traditional Craft (PhD Thesis)
R H Kazi
[Link]

***Vakkhosh (Friendly Monsters)* (30 pages)**
R H Kazi, Z Hossain, M Hoque, G M Tanim
Unmad Publishers, Bangladesh *(2007)*

References