

Mert TOKA

Media Arts & Technology
UC Santa Barbara, CA

merttoka@ucsb.edu
merttoka.com

- Research Focus** computational fabrication; systems engineering; generative art & design; creativity support tools; material-driven workflows; collaborative development & making; data visualization; worldbuilding
- Education**
- UC Santa Barbara, CA**
Ph.D. candidate in Media Arts & Technology (MAT) *2018 - present*
JoAnn Kuchera-Morin*, George Legrady*, Jennifer Jacobs, Marko Peljhan
Qualifying report: *Creative computational systems at the edge of chaos*
- UC Santa Barbara, CA**
M.S. in Media Arts & Technology (MAT) *2016 - 2018*
JoAnn Kuchera-Morin*, Curtis Roads, Marko Peljhan
Siren: General-purpose algorithmic composition and live-coding system
- Sabanci University, Istanbul, Türkiye**
B.S. in Computer Science and Engineering, *Top Ranking* *2010 - 2015*
Selim Balcisoy*
Tangy: Tangible data visualizations
- Publications**
- (*under revision*) A. Del Valle, **M. Toka** & J. Jacobs. Engaging Young People in the Expressive Opportunities of Digital Fabrication Through Craft-Oriented CAM-Based Design. *CHI 2024*, Honolulu, HI, USA.
- M. Toka***, S. Bourgault*, C. Friedman-Gerlicz & J. Jacobs. An Adaptable Workflow for Manual-Computational Ceramic Surface Ornamentation. *UIST 2023*, San Francisco, CA, USA. <https://doi.org/10.1145/3586183.3606726>
- A. Del Valle*, **M. Toka***, A. Aponte & J. Jacobs. PunchPrint: Creating Composite Fiber-Filament Craft Artifacts by Integrating Punch Needle Embroidery and 3D Printing. *CHI 2023*, Hamburg, Germany. <https://doi.org/10.1145/3544548.3581298>
- S. Dodge, **M. Toka** & C. J. Bae. DynamoVis 1.0: an exploratory data visualization software for mapping movement in relation to internal and external factors. *Mov Ecol* **9**, 55, 2021. <https://doi.org/10.1186/s40462-021-00291-5>
- M. Toka**. Siren: General-purpose algorithmic composition and live-coding environment. *Master Thesis*, 2018, Santa Barbara, CA, USA. <https://leonardo.info/leonardo-abstracts-service/38565>
- M. Toka**, C. Ince & M. A. Baytas. Siren: Interface for pattern languages. *NIME 2018*, Blacksburg, VA, USA. <http://doi.org/10.5281/zenodo.1302677>
- C. Ince & **M. Toka**. Siren: Hierarchical composition interface. *ICMC 2017*, Shanghai, China. <http://hdl.handle.net/2027/spo.bbp2372.2017.003>
- M. Toka** & S. Balcisoy. Konumsal verilerin fiziksel görselleştirmeler ile incelenmesi. *USMOS 2015*, Ankara, Türkiye.
- E. Kaya, **M. Toka**, A. Bayrak, B. Bozkaya & S. Balcisoy. Incorporating tabletop visual analytics into the decision-making process: a case study of retail banking. *IEEE BusinessVis15*, Chicago, IL, USA.

Research Experience

Academic Student Employee *Nov 2023 - present*
UCLA, Culture & Creativity Collaborative Initiative, Los Angeles, CA
- Will organize regional workshops, an industry summit, and a national conference to strengthen NSF-funded research and the US creative sector.
- Will collect and analyze data and disseminate findings in academic publications and artistic collaborations.

Graduate Student Researcher *Sep 2021 - present*
UCSB, Expressive Computation Lab, Santa Barbara, CA
- Research novel methods in computational fabrication and material science for clay and textiles.
- Implement CAM-based tools for 3-axis printers and 6-axis robot arms.
- Study collaborative software development with domain experts like artists, researchers, and industry professionals.
- Facilitate artists-in-residents programs and conduct interviews with ceramics artists.
- Develop manual-computational workflows for digital fabrication.

Research Assistant *Feb 2021 - Mar 2022*
UCSB, MoveLab, Santa Barbara, CA
- Updated and improved spatiotemporal movement data visualization software, DynamoVis.

Research Assistant *Jul 2021 - October 2021*
UCSB, Vision and Image Understanding Lab, Santa Barbara, CA
- Created synthetic data sets for contextual object detection and navigation studies.

Researcher *Jun 2015 - Aug 2016*
Sabanci University, BAVLAB, Istanbul, Türkiye
- Researched collaborative data analysis on tangible table-top visualizations.
- Designed and developed spatial data analysis and visualization software and computer vision methods for user interaction.

Exhibitions & Demos

Latentville, SBCAST, Santa Barbara, CA *2023*
3D-printed Ceramic Artifacts by ECL Team — Exhibition
CHI, Hamburg, Germany
PunchPrint Fiber-Filament Craft Artifacts — Demo

Art of Science, UCSB Library, Santa Barbara, CA *2022*
The Edge of Chaos: Growing Patterns in Digital Petri Dish — Exhibition
syMADES, CNSI, Santa Barbara, CA
The Edge of Chaos — Exhibition

syMADES - Open Labs, CNSI, Santa Barbara, CA
Morphogenic Clay Vessels — Demo & Exhibition

Art of Science, SB Museum of Art, Santa Barbara, CA
The Edge of Chaos: Growing Patterns in Digital Petri Dish — Exhibition

EXP. Hybrid.Science.Experimentation, Barcelona, Online *2021*
The Edge of Chaos — Exhibition

Bricolage, UCSB, Online *2020*
Dynamic Confluence — Audiovisual Visualization Software

M.A.D.E., CNSI, Santa Barbara, CA *2019*
GANesis — VR Demo

Immerse(d), Live House, Los Angeles, CA 2018
Subtripping — VR Demo

NIME, Virginia Tech, Blacksburg, VA
Siren — Audiovisual Live-coding Demo

Invisible Machine, SBCAST, Santa Barbara, CA
Siren — Audiovisual Live-coding Performance

Re-habituatation, CNSI, Santa Barbara, CA 2017
Polar Tasks — Data Visualization Exhibition

ArtsIT, Minerva Palace, Istanbul, Türkiye 2014
GOOGLEJACK — App Demo

Sparks, FASS Art Gallery, Istanbul, Türkiye 2013
Shroom — Animated Short Exhibition

Work Experience

Graphics Engineer Mar 2021 - Jan 2022
DailyZone, London, UK

- Implemented the central visual component of the iOS application *DailyZone* with audio-reactive graphics in Unity compute shaders.

Front-End Developer Jan 2021 - Oct 2021
SKR Audio Labs, Seattle, WA

- Implemented advanced front-end modules for audio plug-ins in the cloud-based digital audio workstation.

Graphics & System Developer Dec 2019 - Apr 2020
Audileum / Newtoy Ltd., London, UK

- Designed the infrastructure to capture a live performance with an interactive platform with depth sensors, a server, and a graphics computer.
- Implemented 3D reconstruction, compression, many-to-one networking, multi threading, and rendering in virtual space for the initial prototype in C++ and C#.

Organizer & Curator Mar 2017 - Jun 2017
UCSB, Media Arts & Technology Program, Santa Barbara, CA

- Organized annual student exhibition, *End of the Year Show '17*.
- Coordinated the team, venues, and schedule, managed the show budget, curated the exhibitions, concerts, and guest speakers, implemented the website.

Part-Time Software Engineer Sep 2014 - Nov 2014
VisioThink, Istanbul, Türkiye

- Extended company API with cross-filtering capabilities.
- Created geospatial visualizations using Navteq POI data.

Computer Graphics & HCI Intern Jul 2013 - Sep 2013
Gravi Technologies, Istanbul, Türkiye

- Implemented water simulation and rope physics in C# and developed bungee jumping experience in VR with Oculus Rift DevKit.
- Designed and implemented gesture-based interactive applications.

Workshops & Talks

Simulating Life in WebGPU, Talk — UCSB, CA 2023
Craft, Computer, Hands & Robots, Workshop — UCSB, CA

Experimental Embroidery, Workshop — UCSB, CA 2022

Learning to Code Through Art, Workshop — SB Junior High, CA

Code as a Creative Medium, Talk — UCSB, CA 2018

Programming for the Arts, Talk — UCSB, CA

Scholarships & Grants	Regents Fellowship, UCSB	2018 – 2022
	Fulbright Scholarship	2016 – 2018
	TUBITAK 1001 Research Grant (No: 114E516)	2014 – 2016
	Full Merit Scholarship, Sabancı University	2010 – 2015
Academic Service	External Reviewer. CHI 2024.	2023
	<i>Subcommittee: Developing Novel Devices: Hardware, Materials, & Fabrication.</i>	
Teaching Assistant Experience	MAT238 - Computational Fabrication	<i>Apr 2022 – Jun 2022</i>
	CS190I - Offline Rendering	<i>Sep 2020 – Dec 2020</i>
	MAT200B - Music and Technology	<i>Apr 2020 – Jun 2020</i>
	MAT201B - Computing with Media Data	<i>Jan 2020 – Mar 2020</i>
	INT80THEMAS - Introduction to Media Arts	<i>Aug 2019 – Sep 2019</i>
	MAT276N/MUS209 - Modular Synthesis	<i>Apr 2018 – Jun 2018</i>
	MAT276IA/MUS109 - Direct Digital Synthesis	<i>Apr 2017 – Jun 2017</i>
	CS204 - Advanced Programming	<i>Sep 2015 - Jan 2016</i>
	VA433 - 3D Modeling & Animation (<i>Undergraduate TA</i>)	<i>Sep 2013 – Jan 2014</i>
CS201 - Introduction to Computing (<i>Undergraduate TA</i>)	<i>Feb 2013 – Jun 2013</i>	
Languages & Skills	Programming Languages: C++, C#, Python, Javascript, Java	
	- Graphics: Unity, HLSL, Compute Shaders, WebGPU, Processing, P5.js, OpenGL, GLSL, WebGL	
	- Web: React.js, MobX, HTML, CSS, Node.js, Socket.io	
	- Vision: OpenCV, RealSense SDK	
	- Audio: TidalCycles, Gamma, SuperCollider, MaxMSP	
	Fabrication: GCode, 3D printing (clay, plastic, resin), laser cutting, CNC milling	
	CAD: Rhino/Grasshopper, Fusion 360, Maya, SketchUp, Adobe Creative Suite	
	Hardware Prototyping: Raspberry Pi, Arduino	
	Natural Languages: English (Fluent), Turkish (Native)	