

# “Alan” Dingtian Zhang

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## Education

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- **Georgia Institute of Technology** **Atlanta, GA**  
*Ph.D in Computer Science* **2015–Present**
- **Georgia Institute of Technology** **Atlanta, GA**  
*MS in Computer Science, specialized in Human-Computer Interaction* **2013–2015**
- **Tsinghua University** **Beijing, China**  
*BS in Computer Science and Technology* **2009–2013**

## Research

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- **COSMOS** *'Computational Skins for Multifunctional Objects and Systems'*  
Leading a team to design and develop ubiquitous computational skins that weave into everyday life, which is an collaborative efforts across disciplines to fabricate flexible nanomaterial non-silicon circuits into sensor networks which can collect, process, and communicate data with energy harvested from the environment.
- **Whoosh** *'Non-voice Acoustics for Low-Cost, Hands-Free, and Rapid Input on Smartwatches'*  
Worked in a team to develop Whoosh, a non-voice acoustic input (e.g., blowing, shooshing, and other dynamic events) for low-cost and rapid interaction on smartwatch. Designed and 3D-printed a passive watch case inspired by traditional Asian flute to expand the vocabulary (directional and bezel blows) for commodity smartwatches.
- **Roomscale Augmented Reality:** *'Applying Design Studio Pedagogy in STEM Learning with Novel Presentation and Sensing Technologies'*  
Led development of projected augmented reality to add design studio learning models to a classroom for STEM classes that encourage creativity, innovation, and help build strong peer learning environments. Used Microsoft RoomAlive Toolkit to construct a room-scale augmented reality using pairs of projectors and depth cameras where teachers and students can view and interact with the students' work on the wall.
- **Mobile Brain-Computer Interface:** *'Quadcopter Navigation Using Google Glass and Brain-Computer Interface'*  
Developed assistive technologies for ALS patients to explore surroundings with a camera-mounted drone, Google Glass, and OpenBCI. User's navigate the quadcopter wirelessly by focusing attention on frequency-multiplexed signals on Glass with video feedback displayed from drone's camera.
- **Smartphone Input with Motion Sensors:** *'BeyondTouch: Extending the Input Language with Built-in Sensors on Commodity Smartphones'*  
Worked in a team to develop BeyondTouch, which extends and enriches smartphone inputs to a wide

variety of additional tapping and sliding inputs on the case of and the surface adjacent to the smartphone, by using only existing sensing capabilities on a commodity smartphone. Three types of interactions – one-handed, two-handed, and on-table, are implemented to support a variety of application scenarios. A hybrid method of rule-based and machine learning techniques is used for user input recognition.

## Employment

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- Disney Research** **Pittsburgh, PA**  
○ *Research & Development Lab Associate* *May 2017–Present*  
Fabricating tangible objects using novel 3D printing and sensing technologies.
- Georgia Institute of Technology** **Atlanta, GA**  
○ *Graduate Research Assistant* *January 2016–May 2017*  
Leading student researcher of COSMOS project leveraging the synergy of a team of computer scientists, electrical engineers, and designers to envision and prototype computational skins of the future.
- Technicolor Research** **Los Altos, CA**  
○ *Research & Innovation Intern* *May 2016–August 2016*  
Worked with Dr. Kent Lyons to explore continuous finger tracking in 3D mixed reality using magnetic field. Developed algorithms that tracks magnets in 5 degrees of freedom and a low-cost, energy-efficient tracking system.
- 2Dme** **Cleveland, OH**  
○ *Technical Co-Founder* *May 2014–August 2014*  
Co-founded a startup and successfully landed on incubator Bizdom by coordinating six teams of engineers and artists. Led development of face-to-face chatting technology featuring customizable 2D avatars with real-time facial expression. Worked on human facial feature extraction, rule-based scalable vector graphic (SVG) face animation in Unity, and Android development.

## Publications

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Gabriel Reyes, Dingtian Zhang, Sarthak Ghosh, Pratik Shah, Jason Wu, Aman Parnami, Bailey Bercik, Thad Starner, Gregory D. Abowd, and W. Keith Edwards. "Whoosh: non-voice acoustics for low-cost, hands-free, and rapid input on smartwatches." In *Proceedings of the 2016 ACM International Symposium on Wearable Computers*. ACM, 2016.

Blair MacIntyre, Dingtian Zhang, Ryan Jones, Amber Solomon, Elizabeth DiSalvo, Mark Guzdial. "Using Projection AR to Add Design Studio Pedagogy to a CS Classroom." In *2016 IEEE Virtual Reality (VR)*. IEEE, 2016.

Cheng Zhang, Anhong Guo, Dingtian Zhang, Caleb Southern, Rosa Arriaga, Gregory Abowd. "BeyondTouch: Extending the Input Language with Built-in Sensors on Commodity Smartphones." In *Proceedings of the 20th International Conference on Intelligent User Interfaces*. ACM, 2015.

Davis, Nicholas, Yanna Popova, Ivan Sysoev, Chih-Pin Hsiao, Dingtian Zhang, and Brian Magerko. "Building Artistic Computer Colleagues with an Enactive Model of Creativity." In *Proceedings of 5th International Conference on Computational Creativity*. The International Association for Computational Creativity, May 2014.