Yatharth Singhal

Curriculum Vitae

Department of Computer Science
The University of Texas at Dallas
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Education

2021 – 2025 **Doctor of Philosophy in Computer Science**, *The University of Texas at Dallas*, Texas, USA.
Advisor: Dr. Jin Ryong Kim
GPA: 3.81/4.0

2019 – 2021 **Master of Science in Computer Science**, *The University of Texas at Dallas*, Texas, USA.
GPA: 3.83/4.0

2014 – 2018 **Bachelor of Technology in Computer Science**, *Jaypee Institute of Information Technology*, Noida, India.
GPA: 3.75/4.0

Awards

2024 ***Outstanding Ph.D. Student in Computer Science*** at The University of Texas at Dallas.

2024 ***Best Demonstration Award*** at IEEE ISMAR 2024 for *Demonstration of Thermal Flow Illusions with Tactile and Thermal Interaction.*

2024 ***Best Demo Honorable Mention Award*** at ACM UIST 2024 for *Thermal In Motion: Designing Thermal Flow Illusions with Tactile and Thermal Interaction.*

2024 ***Honorable Mention for Best Demonstration Award*** at IEEE Haptic Symposium 2024 for *Demonstrating Upper Body Thermal Referral and Tactile Masking for Localized Feedback.*

2023 ***Best Student Demonstration Award*** at SIGGRAPH Asia 2023 for *FIRE: Mid-Air Thermo-Tactile Display.*

Journal Publications

J2 Haokun Wang, **Yatharth Singhal**, and Jin Ryong Kim, *Let It Snow: Designing Snowfall Experience in VR*, Proceedings of ACM Interactive Mobile Wearable Ubiquitous Technology (**IMWUT**) Vol. 8, Iss. 2, Article 54 June 2024.

J1 Hyungki Son, Haokun Wang, **Yatharth Singhal**, and Jin Ryong Kim, *Upper Body Thermal Referral and Tactile Masking for Localized Feedback*, IEEE Transactions on Visualization and Computer Graphics **(First Co-Author)** Best Paper Nomination.

Conference Publications

C7 **Yatharth Singhal,** Daniel Honrales, and Jin Ryong Kim, *"Thermal In Motion: Designing Thermal Flow Illusions with Tactile and Thermal Interaction"*, In Proceedings of the 37th Annual ACM Symposium on User Interface Software and Technology (**UIST 2024**).

C6 Haokun Wang, **Yatharth Singhal**, Hyunjae Gil, and Jin Ryong Kim, *"Fiery Hands: Designing Thermal Glove through Thermal and Tactile Integration for Virtual Object Manipulation"*, In Proceedings of the 37th Annual ACM Symposium on User Interface Software and Technology (**UIST 2024**).

C5 **Yatharth Singhal,** Daniel Honrales, Hsin-Ni Ho, and Jin Ryong Kim, *"Wetness Illusion in Mid-Air"*, IEEE International Symposium on Mixed and Augmented Reality (**ISMAR 2024**).

C4   Haokun Wang, **Yatharth Singhal**, Hyunjae Gil, and Jin Ryong Kim, *"Thermal Masking: When the Illusion Takes Over the Real"*, In Proceedings of the CHI Conference on Human Factors in Computing Systems (**CHI 2024**).

C3   Haokun Wang, **Yatharth Singhal**, and Jin Ryong Kim, *"Fabric Thermal Display using Ultrasonic Waves"*, IEEE International Symposium on Mixed and Augmented Reality (**ISMAR 2023**).

C2   **Yatharth Singhal,** Richard Noeske, Ayush Bhardwaj, and Jin Ryong Kim, *"Improving Finger Stroke Recognition Rate for Eyes-Free Mid-Air Typing in VR"*, In Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems (**CHI 2022**).

C1   **Yatharth Singhal,** Haokun Wang, Hyunjae Gil, and Jin Ryong Kim, *"Mid-air thermo-tactile feedback using ultrasound haptic display"*, In Proceedings of the 27th ACM Symposium on Virtual Reality Software and Technology (**VRST 2021**).

Conference Demonstrations

D6   **Yatharth Singhal,** Daniel Honrales, and Jin Ryong Kim, *"Demonstration of Thermal Flow Illusions with Tactile and Thermal Interaction"*, IEEE International Symposium on Mixed and Augmented Reality (**ISMAR 2024**) **Best Demo Award**.

D5   **Yatharth Singhal,** Haokun Wang, and Jin Ryong Kim, *"Demonstration of FIRE: Mid-Air Thermo-Tactile Display"*, IEEE International Symposium on Mixed and Augmented Reality (**ISMAR 2024**).

D4   Haokun Wang, **Yatharth Singhal**, Hyunjae Gil, and Jin Ryong Kim, *"Demonstration of Fiery Hands: Thermal Gloves through Thermal and Tactile Integration"*, IEEE International Symposium on Mixed and Augmented Reality (**ISMAR 2024**).

D3   **Yatharth Singhal,** Haokun Wang, and Jin Ryong Kim, *"FIRE: Mid-Air Thermo-Tactile Display"*, In ACM SIGGRAPH 2024 Emerging Technologies (**SIGGRAPH 2024**).

D2   **Yatharth Singhal,** Haokun Wang, and Jin Ryong Kim, *"Demonstrating Mid-Air Ultrasound Haptics with Thermal Display"*, IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (**VRW 2024**).

D1   **Yatharth Singhal,** Haokun Wang, and Jin Ryong Kim, *"FIRE: Mid-Air Thermo-Tactile Display"*, In SIGGRAPH Asia 2023 Emerging Technologies (**SIGGRAPH ASIA 2023**) **Best Demo Award**.

Professional Experience

Infosys Ltd.

June 2018 – ***Systems Engineer***.
June 2019
- Excelled in technical training, securing top-tier performance and direct promotion to specialization, demonstrating rapid skill acquisition and application.
- Pioneered dashboard solutions, integrating cutting-edge technologies to streamline data analysis processes for high-profile healthcare and banking clients.
- Fostered cross-functional teamwork to deliver robust dashboard solutions, ensuring seamless integration of client requirements and technical capabilities.

Waycool Food and Product Pvt. Ltd.

May 2017 – ***Web Application Development Intern***.
Oct 2017
- Analyzed market trends to develop a dynamic pricing algorithm, enhancing the accuracy and competitiveness of the F&V pricing system.
- Engineered real-time pricing engine for the market, integrating Python, HTML5, CSS3, JavaScript, jQuery, AJAX, and PHP to deliver responsive website solutions.

Research Skills

Qualitative and Quantitative Research Methods
Experimental Design, NHST, Psychophysics, Usability Testing, Heuristic Evaluation, Survey Design

Programming
Python, C, C++, C#, Java, Javascript, AngularJS, NodeJS, VR/AR Development (Unity3D), Machine Learning (PyTorch, Scikit-learn, Tensorflow, WEKA)

Statistical and Data Analysis
ANOVA, GLMMs, Python libraries, JASP

Prototyping
Arduino, Raspberry Pi, 3D Printing, 3D Modelling, Photoshop, Illustrator, Premiere Pro, After Effects

Teaching Assistantship

Fall, 24 :	**CS4352: Introduction to Human-Computer Interactions**, UT Dallas.
Fall, 24 :	**CS4349: Advanced Algorithm Design and Analysis**, UT Dallas.
Summer, 24 :	**CS4352: Human-Computer Interactions I**, UT Dallas.
Summer, 23 :	**CS4384: Automata Theory**, UT Dallas.
Summer, 23 :	**CS4347: Database Management**, UT Dallas.
Spring, 23 :	**CS6334: Virtual Reality**, UT Dallas.
Spring, 23 :	**CS4384: Automata Theory**, UT Dallas.
Fall, 22 :	**CS6326: Human-Computer Interactions**, UT Dallas.
Fall, 22 :	**CS4361: Computer Graphics**, UT Dallas.
Spring, 22 :	**CS6326: Virtual Reality**, UT Dallas.
Spring, 22 :	**CS4347: Database Management**, UT Dallas.
Fall, 21 :	**CS6334: Virtual Reality**, UT Dallas.
Fall, 21 :	**CS4392: Computer Animation**, UT Dallas.
Summer, 21 :	**CS3345: Data Structures and Introduction to Algorithmic Analysis**, UT Dallas.

Outreach

May 2022 - Present	**UTD CS Summer Research Program**. Taught high-school students hands-on research and development experience in VR and haptics.
May 2022 - July 2022	**UTD STEM Bridge Summer Camp**. Taught high-school students hands-on research and development experience in VR using Unity 3D.

Reviewing

ACM CHI, ACM IMWUT, ACM ICMI, IEEE TOH, IEEE ISMAR, IEEE VR, IEEE Haptic Symposium, AsiaHaptics, Eurohaptics