Zeyu Deng

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EDUCATION:

Southern Methodist University (SMU) — Dallas, TX
Ph.D. in Computer Science — GPA 3.85/4.00 | 2026

University College London (UCL) — London, UK
MSc Internet Engineering — 2018 – 2019

University of Birmingham — Birmingham, UK
BEng Electronic and Electrical Engineering — 2016 – 2018

Huazhong University of Science and Technology (HUST) — Wuhan, CN
BEng Electrical Engineering and Automation — 2014 – 2016

SKILLS:

Programming: Python, MATLAB, C/C++, C#
ML & Data: Transformers, GANs, CNNs (PyTorch); computer vision (MediaPipe, MPIIGaze)
Systems & Tools: ROS, Unity, VR/AR (Meta Quest, Leap Motion), Git, Cloud/HPC, Raspberry Pi

RESEARCH PROJECTS:

Your Eyes Won't Lie: Snooping Online Voting Privacy from User Webcam 12/2023 – Present

- Engineered a real-time eye-tracking platform, processing 10,000+ videos at 60 FPS to extract gaze and micro-motion features for large-scale behavior collection and analysis
- Led a team of 2 PhD students and 1 undergraduate researcher to design experiments and collect datasets, ensuring reliability and scalability
- Developed a Transformer encoder-based classifier that inferred voting choices with 95.6% accuracy

Tangible Virtual Reality PIN Authentication with Coordinated Multi-joint Biometric Security 12/2022 – Present

- Built a VR-based authentication system projecting a keypad onto the user's non-dominant hand and capturing multi-joint motion for PIN entry
- Discovered long-term stable multi-joint biometric features based on their linear and angular motions, enabling authentication with 0.993 F1 score
- Mentored a master's student during development and published results as a poster at IEEE S&P 2023

Rethinking Human Biometric Security Under Behavioral Copy and Robot Replay 04/2022 – Present

- Implemented a robot replay attack framework, reproducing in-air signatures with a 70.3% success rate using motion eavesdropping and GAN-based reconstruction
- Coordinated an international collaboration with a UK-based research team, managing experiments and joint publications

Enhanced In-air Signature Verification via Hand Skeleton Tracking to Defeat Robot-level Replay 05/2022 – 12/2023

- Created a camera-independent 3D signature verification system, resistant to replay attacks with 99.8% prevention accuracy
- Extracted spatiotemporal multi-joint features to train deep learning models, optimizing reproducibility across camera modalities
- Delivered a keynote at ACSAC 2023

First Person Remote Robot Control with Hand Motion in Virtual Reality 09/2021 – 09/2022

- Deployed a teleoperation system enabling real-time robotic arm control through VR hand-tracking
- Designed APIs and protocols for remote experiments, ensuring interoperability across universities
- Presented poster and demo at UbiComp 2022

Verifying the User of Motion-Controlled Robotic Arm Systems via the Robot Behavior 04/2020 – 10/2021

- Identified behavioral fingerprints transferred from human operators to robotic arms, enabling user verification in interactive control scenarios
- Built feature extraction and ML pipelines to validate unique robotic motion signatures across experiments
- Published results in IEEE IoT Journal, WiSARN 2021 (Best Paper Award), and presented at MobiCom 2022

ACADEMIC SERVICE:

Research Assistant – SMU *(transferred from LSU with PhD Advisor in Aug 2024)* 09/2021 – Present

- Developed cyber-physical systems with motion tracking, robotics, and VR; designed experiment and data collection protocols
- Led collaborations across universities and mentored master's/undergraduate students
- Contributed to teaching (guest lectures, demos) and managed research group logistics

Teaching Assistant – LSU 09/2021 – 08/2024

- Taught MATLAB labs in numerical methods; graded assignments in OS and algorithms courses
- Presented cybersecurity demos and supported classroom instruction

Outreach and Engagement

- Featured in The Dallas Morning News (2025) and SMU Lyle Tour Video (2024), presenting hand-tracking and robotic arm projects; showcase demos to more than 100 attendees
- Speaker/Judge at LSU REHAMS Summer Program (2022 – 2024), delivered keynotes and demos
- Guest speaker for JROTC Cybersecurity Cadets (2023), presented cyber-physical security slides and demos

UNIVERSITY INVOLVEMENT:

SMU, CS PhD Research Forum Committee 09/2024 – Present

- Coordinate a monthly research forum for computer science PhD students
- Facilitate discussions among students during lunch forum

UCL, MSc Student Representative 09/2018 – 09/2019

- Advised students' desires and suggestions to the department in bi-monthly faculty-student meetings
- Organized group studies and a dinner reception for master's students in the department

AWARDS:

Provost's Summer Research Grant (SMU 2025)
Lyle Best Poster Award (SMU 2025)
Best Paper Award (WiSARN 2021)
RIW Dean's Awrad (SMU 2025)
ACM Student Research Competition (MobiCom 2022)
Best Project Prize (UCL 2019)