Riccardo Bovo
HCI/AI Researcher

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Summary of Qualifications

I'm a 4th-year PhD student in computer science at Imperial College London. My research interests lie in HCI, virtual and augmented reality (VR/AR), and AI. I conduct research in VR/AR and train and evaluate behavioural inference models to power intelligent user interfaces and support collaboration in VR/AR. Previously, I worked on 3D web customisers for the 3D printing industry. I enjoy working in a multi-disciplinary team and aim to use technology to help people.

Education

PhD candidate in Computer Science, Imperial College London

NOVEMBER 2019 - PRESENT, LONDON UK

My research is centred on VR/AR collaboration, focusing on the interplay between verbal and non-verbal communication and its connection to the user's context. I am particularly interested in designing intelligent user interfaces that capitalise on cutting-edge AI comprehension of verbal and non-verbal communication and the user's surroundings to improve collaboration.

MSc in Human-Computer Interaction, University College London

2016 - 2017, LONDON UK

Research Experience

Autodesk Research / Research Intern

JUNE 2023 - SEPTEMBER 2023, TORONTO CA

I designed a system to address the limitations of LLM in summarising ambiguous language in VR recordings. As part of this project, I developed a multi-user VR environment tailored for collaborative data collection, where multiple participants could conduct VR design reviews. Additionally, I created a Python application to perform coreference resolution that capitalises on nonverbal behaviour observed in VR recordings. The results of this work were submitted to the CHI 2024 conference.

University College London / Research Assistant at UCLIC

MARCH 2018 - OCTOBER 2019, LONDON UK

I joined as part of an EU-funded project led by UCL titled Human Manufacturing. This initiative aimed to enhance workers' capabilities and boost efficiency on manufacturing factory floors. I developed an AR work floor layout editor for factory planning using Unity and Hololens in this context. Additionally, I designed and assessed AR-based manufacturing assembly instructions. I also pioneered creating an AI model for user intention recognition, which predicts errors during manual assembly tasks by analysing the user's eye gaze and hand pose.

Work Experience

Digital Forming / UX Designer/Frontend Developer
OCTOBER 2010 - AUGUST 2016, LONDON, UK
Digital Forming was a London software house that created a visionary platform enabling mass customisation using cutting-edge additive manufacturing technologies.

Selected Peer-Reviewed Publications

CHI 2023 - Speech-Augmented Cone-of-Vision for Exploratory Data Analysis
Riccardo Bovo, Daniele Giunchi, Ludwig Sidenmark, Joshua Newn, Hans Gellersen, Enrico Costanza, Thomas Heinis

IUI 2022 - Detecting errors in pick and place procedures: detecting errors in multi-stage and sequence-constrained manual retrieve-assembly procedures
R Bovo, N Binetti, DP Brumby, S Julier

ETRA 2022 - Real-time head-based deep-learning model for gaze probability regions in collaborative VR
R Bovo, D Giunchi, L Sidenmark, H Gellersen, E Costanza, T Heinis 2022

CSCW 2022 - Cone of Vision as a Behavioural Cue for VR Collaboration R Bovo, D Giunchi, M Alebri, A Steed, E Costanza, T Heinis

For a complete list of publications, please visit [Google scholar profile](#)

Technical Skills

OS: Windows and Linux

Languages: Python, C# , Javascript , Latex, HTML/CSS

- **Proficient:** C# (Unity, Oculus SDK, TFLight, Vuforia, Microsoft Reality SDK), Python (OpenCV, Tensorflow, Keras, NumPy, Pandas, SciPy)
- **Familiar:** Javascript (D3.js, Three.js), HTML/CSS (Bootstrap)

Machine Learning: Recurrent Neural Networks (LSTM), Convolutiona Neural Networks, data analysis and visualization

Mathemathics: Linear algebra, statistical analsysis, optimal design of experiments.

Languages

Italian: Native
English: Proficient