



# VAHID POORYOUSEF

## HCI PhD Researcher

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 Google Scholar vahid-pooryousef vahpy

## STRENGTHS

- Applied Research
- Virtual/Augmented Reality
- Computer Graphics
- Data Visualisation
- User-Centred Design
- Qualitative Study
- Fast prototyping

## SKILLS

- XR Development
- R
- Java
- C#
- C++
- Unity
- 3Ds Max
- SQL
- Full-stack Web Development
- Arduino

## REFERENCES

Prof. Tim Dwyer  
tim.dwyer@monash.edu

Dr. Maxime Cordeil  
m.cordeil@uq.edu.au

Dr. Lonni Besançon  
lonni.besancon@gmail.com

## ABOUT

HCI PhD researcher specialising in computer graphics, visualisation, XR technologies, and user-centred design.

Webpage: <https://vahpy.github.io>

## RESEARCH AND ACADEMIC EXPERIENCE

Research Assistant | Monash University July 2024 – Present

Melbourne, Australia

- Medical Imaging Visualisation and Interactive Segmentation using XR and AI

Teaching Associate | Monash University Aug 2022 – Feb 2025

Melbourne, Australia

- Data Visualisation and Exploration, Bachelor (FIT3179) and Master (FIT5147)

## EDUCATION

PhD Candidate | Embodied Visualisation Lab, Monash University Aug 2021 – Present

- Project title: Immersive Forensic Investigation

M.Sc. in Software Engineering | University of Tehran (Rank #1 in Iran) 2019

- Project title: Muscles Multi-Volume Visualisation by an Enhanced Ray Casting Technique in Multi-Slice CT Images - GPA: 19.14 / 20

B.Sc. in Software Engineering | Amirkabir University of Technology (Rank #3 in Iran) 2016

- Final project topic: Implementation and Visualisation of a Distributed Colouring Algorithm on clusters for Big Graphs using Apache Spark (High Performance Computing) - GPA: 17.95 / 20

## PUBLICATIONS

Full paper: **Vahid Pooryousef**, Maxime Cordeil, Lonni Besançon, Richard Bassed, and Tim Dwyer. "Collaborative Forensic Autopsy Documentation and Supervised Report Generation using a Hybrid Mixed-Reality Environment and Generative AI," in *IEEE Transactions on Visualization and Computer Graphics*, 2024. [Download][Video demo] | IEEE Xplore

Full paper: **Vahid Pooryousef**, Maxime Cordeil, Lonni Besançon, Christophe Hurter, Tim Dwyer, and Richard Bassed. 2023. "Working with Forensic Practitioners to Understand the Opportunities and Challenges for Mixed-Reality Digital Autopsy," in *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (CHI '23* - the most reputable venue in human computer

Workshop paper: **Vahid Pooryousef**, Maxime Cordeil, Lonni Besançon, Richard Bassed, and Tim Dwyer. 2024. "Towards Crime Scene Analytics with Extended Reality: Opportunities, Challenges, and Direction," in *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (ISMAR '24)*, October 2024. [Download] |  IEEE Xplore

Short paper: **Vahid Pooryousef**, Ross Brown, and Selen Turkay. 2019. "Shape Recognition and Selection in Medical Volume Visualisation with Haptic Gloves," in *31ST AUSTRALIAN CONFERENCE ON HUMAN-COMPUTER-INTERACTION (OZCHI'19)*, December 2019. [Download] |  ACM DL

Full paper: **Vahid Pooryousef**, Malihe Molaie, and Reza Aghaeizadeh Zoroofi. "A Fast Method for Medical Multi-Volume Visualization," in *26th National and 4th International Iranian Conference on Biomedical Engineering (ICBME)* November 2019. [Download] (Persian)

## ACADEMIC SERVICES

Co-Chair of SV Committee | [IEEE VIS '23 Conference](#)  Nov 2022 – Nov 2023

Co-Supervisor of a Master Student | [Monash University](#)  August 2024 – Present

### Reviewer

- 2 papers for CHI '24 and '25, 1 paper for IEEE TVCG, 2 papers for ISMAR '23 and '24, 1 paper for VRST '24, 1 paper for Journal of Computer Graphics and Applications

## MEDIA COVERAGE/PUBLICITY

### Australian Media:

The Australian: "Tim Dwyer is the leading researcher in computer graphics" |   Nov 2023

- speaks about my project, autopsy with augmented reality

ABC News & Communications of the ACM: "Forensic imaging technology helps virtual autopsies outnumber invasive post-mortem procedures" |    Feb 2023

- showcasing a demo of my project

The Age: "Solving the digital dilemma facing corporate Australia" |   Jan 2023

- describing my PhD as an example of successful research projects at Monash University

### International Media:

Swedish National Radio: "Så kan forskare undersöka döden på ett nytt sätt" |   August 2023

Le Point (Top 3 news agency in France): "Une autopsie virtuelle... pour un cadavre bien réel" |   May 2023

## PUBLISHED MEDIA ARTICLES

The Conversation: "What is Sora? A new generative AI tool could transform video production and amplify disinformation risks", written by Vahid Pooryousef and Lonni Besançon |   Feb 2024

## HONORS AND AWARDS

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- Graduate Research Industry Partnership scholarship from Monash University, 2021

## PROJECTS (INCLUDES PAID PROJECTS)

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### Computer Graphics

- An augmented reality system for medical data analysis with new interaction techniques using Unity and MRTK – Aug. 2021 - current
- A fast multi-volume rendering of Muscles using VTK - 2019

### Web-based Applications

- Full-stack development of a ticket selling website, with the visual seat allocation system (paid) - 2018
- Customised several wordpress template and plug-ins (paid) - 2015-2019
- An autofill web-extension (paid) - 2021
- Full-stack development of A responsive social media web app - 2015
- An online donation web application (paid) - 2018

### High Performance Computing

- Implementation and Visualisation of a Distributed Colouring Algorithm on a Cluster for Big Graphs using Apache Spark, GraphX and Hadoop. 2016

### Information Retrieval

- A Static Search Engine, with high performance and efficiency that search among thousands of documents, finds more relevant according to content, synonyms etc, the best one in the class (took about 100 work-hours). May - June 2014

### Compiler

- Implementing a compiler using ANTLR (in Java), Dec. 2015

### Advanced Programming

- Strategic Graphical Game (called Jumong2), written in Java. Mar. – June 2013

### Programming Languages

- Designing and Implementing of an Interpreter for Anonymous Language (in OCaml -ML), Jan. 2015

### Advanced Graph Theory

- Implementing the K-clique densest subgraph problem calculator (in R), Dec. 2016

### Distributed Systems

- Implementing a Consensus Algorithm using Kompic(in Java),Jun. 2017

### Operating System

- Device Driver for Linux (in C), Nov. 2014
- Chat Room Program for Linux (in C), Nov. 2014

### Data structure

- Puzzle solver with trees (in C++), Jan. 2014

### Computer Architecture

- Simulate Complete ALU (in Proteus), May 2014
- Designing Basic Computer, May 2014

### Computer Architecture Lab

- Basic Computer on FPGA (in VHDL), Jan. 2015

### Microcontroller Lab

- Design, Code, and Making an Electrical Circuit for Digital Door Lock with SMS Notification - May 2014

## DETAILED TECHNICAL SKILLS

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### AR/VR application development

- Competent in: Unity and Mixed Reality Toolkit for VR and AR headsets

### Computer Graphics

- Competent in: Vertex/Fragment/Compute Shader Programming, HLSL, OpenGL and GLSL, VTK

### Data Analytics and Visualisation

- Competent in: R, D3, Tableau, and Vega-lite
- Basic Knowledge: PowerBI, Matlab, Python

### Cloud platforms

- Competent in: AWS, Azure

### Windows and Linux Programming

- Competent in: JAVA (My main programming language, Inc: Swing, JavaFX, Hibernate, J2EE, Tomcat, Android app development, etc.), C#, C++ and C
- Basic knowledge: Python, OCaml

### Windows and Linux Programming

- Competent in: PHP, HTML5, JS (+JQuery), CSS
- Basic knowledge: JSP, and other J2EE technologies

### Database

- Competent in: MySQL/MariaDB, Complex SQL Queries, Relational Database Design

### Distributed Frameworks

- Competent in: Spark
- Basic knowledge: Elastic Search

### Art Technologies

- Competent in: Modeling and Animating in Autodesk 3Ds Max (since version 5 to 2011), Adobe Photoshop, and Adobe Premier

### Hardware

- Competent in: AVR and Ardinuo programming, Circuit designing (Proteus)
- Basic knowledge: VHDL & FPGA

### Other software tools

- Microsoft Office, Android Programming, Assembly x86, Lisp