Deniz Mevlevioglu

PhD Computer Science

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Profile

I have completed my Computer Science PhD at University College Cork, researching real-time anxiety classification in Virtual Reality Exposure Therapy. My research interests include on-body physiological sensors, artificial intelligence, and extended reality. I am an experienced tutor and research fellow in varying topics in Computer Science, such as Virtual Reality, Web Development, and 3D modelling.

Skills

- Academic Research
- Data Analysis
- Game Development
- Teaching
- Web Development

Interests

- Human-Computer Interaction
- Extended Reality
- Smart Health
- Biosensors
- Artificial Intelligence

Programming Languages

- C#
- Python
- Java
- JavaScript

Languages

- English (Full Professional Proficiency)
- Turkish (Native)

Technologies

- Keras
- TensorFlow
- SKLearn
- Pytorch
- SPSS
- Unity
- Blender
- Three.js
- Git
- Linux

Publications

Real-time Classification of Anxiety in Virtual Reality Therapy Using Biosensors and a Convolutional Neural Network.
Deniz Mevlevioğlu, Sabin Tabirca, and David Murphy. 2024.
MDPI Biosensors 14 (3)
DOI: 10.3390/bios14030131

Anxiety Classification in Virtual Reality Using Biosensors: A Mini Scoping Review.
Deniz Mevlevioğlu, Sabin Tabirca, and David Murphy. 2023.
PLoS One 18 (7)
DOI: 10.1371/journal.pone.0287984

Emotional Virtual Reality Stroop Task
Deniz Mevlevioğlu, Sabin Tabirca, and David Murphy. 2023.
IEEE International Conference on Pervasive Computing and Communications Workshops and other Affiliated Events (PerCom Workshops)
DOI: 10.1109/PerComWorkshops56833.2023.10150350

Emotional Virtual Reality Stroop Task: an Immersive Cognitive Test
Deniz Mevlevioğlu, Sabin Tabirca, and David Murphy. 2022.
In Proceedings of the ACM International Conference on Interactive Media Experiences (IMX '22).
DOI: 10.1145/3505284.3532988

Real-time Anxiety Prediction in Virtual Reality Therapy: Research Proposal.
Deniz Mevlevioğlu, Sabin Tabirca, and David Murphy. 2021.
Proceedings of the 12th ACM Multimedia Systems Conference (MMSys '22).
DOI: 10.1145/3524273.3533926

Emotional Virtual Reality Stroop Task: Pilot Design.
Deniz Mevlevioğlu, Sabin Tabirca, and David Murphy. 2021.
In Proceedings of the 27th ACM Symposium on Virtual Reality Software and Technology (VRST '21).
DOI: 10.1145/3489849.3489952

Visual Respiratory Feedback in Virtual Reality Exposure Therapy: A Pilot Study.
Deniz Mevlevioğlu, Sabin Tabirca, and David Murphy. 2021.
In Proceedings of the ACM International Conference on Interactive Media Experiences (IMX '21).
DOI: 10.1145/3452918.3458799

Real-time Anxiety Prediction in Virtual Reality Exposure Therapy.
Deniz Mevlevioğlu, David Murphy, and Sabin Tabirca. 2021.
In Adjunct Proceedings of the ACM International Conference on Interactive Media Experiences (IMX '21).
DOI: 10.6084/m9.figshare.14699751.v1

Education

PhD in Computer Science
University College Cork
2020 - 2024
Viva date: 20.11.2024 (minor corrections)
- Thesis Title: *"Real-time Anxiety Classification in Virtual Reality Exposure Therapy"*

Msc In Interactive Media (Computer Science)
University College Cork
2018 - 2019
- Thesis Title: "*Visual Respiratory Feedback in Virtual Reality Exposure Therapy*"
- 1:1 Honours

BA in Psychology
Bahcesehir University
2018 - 2019
- 74/100 GPA

Other Education

Epigeum Research Integrity
Oxford University Press
2020

Pedagogical Formation
Marmara University
2018

Work Experience

Postdoctoral Researcher
Technological University of the Shannon: Midlands Midwest, School of Engineering, EU TRANSMIXR project
September 2024 to present
Responsibilities:

- Collaborated with EU partners and stakeholders, including TG4, VRAI, Khora, Satore, CWI, Sound and Vision, VUB, TCD, and Immersion with a vision to "Ignite the Immersive Media Sector by Enabling New Narrative Visions"
- Developed Extended Reality environments and toolkits to extend the reach of XR environments to the cultural sector
- Contributed to the extension of research grants and prepared research proposals
- Disseminated research results in international venues by writing papers about the evaluation of the environments

Skills and technologies:
Extended Reality • C# • Living Lab Methodology • Co-creation • Impact assessment • Artificial Intelligence • Biosensors • Python •Volumetric Video • Synchrony •QoE

Demonstrator
University College Cork, School of Computer Science and Information Technology
September 2019 to June 2024
Responsibilities:

- Demonstrated for practical sessions to a class of approximately 40 MSc students
- Presented over five tutorials per semester on computer science topics
- Guided students through problem-solving to improve their programming skills

Skills and technologies:
Virtual Reality • Python • Java • HTML • CSS • JavaScript • PHP • Blender •jQuery • three.js • WebGL • Teaching

Visiting Researcher
University of Virginia, Link Lab
June 2023 to September 2023
Responsibilities:

- Designed and carried out the research project entitled "Interpersonal synchrony of socially anxious dyads during Zoom video calls".
- Made presentations about my research to the team
- Collaborated with a team of psychologists and engineers

Skills and technologies:
Python • Biosensors • R • Project Management • Collaboration

Tutor
University College Cork, Munster Programming Training
June 2019 to June 2023
Responsibilities:

- **Delivered lectures that enabled over 60 secondary students to be proficient in creating the front-end and back-end of their personal websites from scratch**
- **Provided hands-on exercises each week based on the students' levels**
- **Created and graded assignments**

Skills and technologies:
HTML • CSS • JavaScript • PHP • SQL • MySQL • Apache • Teaching • Communication

Web Developer
Freelance
June 2019 to October 2020
Responsibilities:

- Designed and developed personal and e-commerce websites
- Came up with dynamic solutions based on customer needs
- Worked with a team of designers and developers
- Made sure the websites follow accessibility standards
- Provided SEO

Skills and technologies:
HTML • CSS • JavaScript • PHP • WordPress • SEO • Development

Tutor
University College Cork, School of Arts and Humanities
June 2019 to June 2023
Responsibilities:

- Prepared and delivered tutorials to a class of 40 BA students about creating a personal website using WordPress
- Created hands-on exercises to analyse their skills and needs
- Introduced and familiarised students with technologies useful for academia

Skills and technologies:
Teaching • HTML • CSS • WordPress • Communication

Intern School Counselor
Feridun Tumer Technical Anatolian Secondary School
January 2017 to June 2017
Responsibilities:

- Made a year-long education plan after assessing student needs
- Held introductory seminars to students and employees, providing information about counselling
- Created individualised education programs for students with special needs

Skills and technologies:
Teaching • Counselling • Communication

Activities

Guest Lecturer
University College Cork, School of Computer Science and Information Technology
2022-2023

- Prepared and delivered a guest lecture with the topic “Using Python for Scripting in Blender” to approximately 40 postgraduate students

Ireland Team Lead
European Girls’ Olympiads of Informatics
2022

- Represented the Irish Team in the European Girls’ Olympiad in Informatics as a team lead. Our team came back with a bronze medal.

Project Advisor
University College Cork, School of Computer Science and Information Technology
2022

- Supervised two Master’s projects in the field of Computer Science, Human-Computer Interaction and Virtual Reality

Student Volunteer Chair
ACM International Conference on Interactive Media Experiences (IMX)
2022

- Directed and monitored a team of student volunteers to aid hundreds of participants for ACM IMX 2022, the leading international conference for interactive media experiences held in Aveiro, Portugal and virtually

Academic Speaker
NBT Berlin - International Forum on Neural Engineering & Brain Technologies
2022

- Presented my work titled ‘Real-time anxiety prediction in Virtual Reality’ to more than a hundred people in Berlin

Panellist
SFI Advance CRT Research Colloquium
2022

- Organised and presented student contributions in the SFI ADVANCE research colloquium held in Dublin

Competitor - Team XHalers
VR4Rehab Competition
2021

- Collaborated with a team of physiotherapists, nurses, physicians and computer scientists to design and prototype “Short games for long covid”; a VR application for aiding in the management of long-covid symptoms for the VR4Rehab hackathon by Interreg, held virtually

Projects

Real-time Anxiety Classification in Virtual Reality Exposure Therapy

A decision-support system in VR therapy that uses heart rate, skin conductance and brain activity for seamless, objective feedback.
Technologies:
Unity • C# • Shimmer GSR • Myndplay Myndband • GIMP • Audacity

Discord LLM Chatbots

Two chatbots that are capable of processing text and responding in a meaningful way. "Llan" is programmed using the discord.js library and GPT-3 API. It is good at answering general questions and creative tasks such as making ASCII art and writing poems.
The second one, "Denizbot", is programmed using pycord library and GPT-J models. It is fine-tuned using LORA to speak similarly to its creator, me.
Technologies:
JS • Python • GPT-3 • GPT-J • node.js • discord.js • pycord

Space Archivist

A toolkit that makes it possible for curators in museums to showcase their collection using modular minigames.
Technologies:
Unity • C# • VR2Gather • UI Toolkit • Fishnet

Visual Respiratory Feedback in Virtual Reality Exposure Therapy

An experience that lets the user experience height in the comfort of VR. It incorporates physiological signals and respiratory biofeedback to enhance the experience.
Technologies:
Unity • C# • Shimmer • Myndplay • Reaper

ooOoOo

A short and fun game where you play as a small ball rolling around and getting bigger by consuming enemies smaller in size and shooting enemies bigger in size.
Technologies:
Unity • C# • Shimmer GSR • Myndplay Myndband • GIMP • Audacity