Eleftherios Triantafyllidis

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ACADEMIC EXPERIENCE

The University of Edinburgh **Sep. 2019 – Present**
Ph.D., in Robotics and HCI/HRI Research *Edinburgh, United Kingdom*

- Researching effective ways of maximising and transferring human dexterity and cognition, via multimodal VR/MR solutions and metrics, to intelligent agents, by leveraging hierarchical imitation learning. In particular:
  - Solving complex long-horizon robotic tasks via hybrid hierarchical learning architectures, with a focus on emerging behaviour, reusable demonstrations and solving multi-skill tasks from single policies.
  - Investigation of different multimodal interfaces and their influence towards human perception;
  - Evaluation metrics and standardisation of tools for capturing human motor performance;
- Supervisory Team: Dr. Zhibin Li and Prof. Taku Komura
- EPSRC Funded full-time scholarship award for the duration of the studies

The University of Edinburgh **Sep. 2018 – Sep. 2019**
M.Sc. by Research, in Robotics and HCI/HRI *Edinburgh, United Kingdom*

- Awarded with distinction – 1st class honours /GPA equivalent: 4.0 (180 ECTS)
- EPSRC Funded full-time scholarship award for the duration of the studies
- **Thesis:** The Contributions of Sensory Feedback in VR Teleoperation of Robotic Tasks of Varying Complexity

University of Applied Sciences Kavala **Sep. 2011 – Sep. 2016**
B.Sc., in Computer Science and Computer Engineering *Kavala, Greece*

- Awarded with very good – 7.37/10 (240 ECTS)
- ERASMUS internship in Audi AG, Ingolstadt, Germany
- **Outstanding Project Award:** Fully Autonomous Fire Detection Rover Vehicle
- **Thesis:** Fully Autonomous Navigation, Localization and Landing of a Quadcopter with a Monoscopic Camera

PROFESSIONAL EXPERIENCE

Telexistence Inc., Tokyo **Jul. 2022 – Oct. 2022**
Software Engineer and Programmer (Internship) *Tokyo, Japan*

- Solely responsible for the transition from a real-world company-built robot for drink replenishing purposes operating in the wider metropolitan Tokyo area, to a fully simulated environment (NVIDIA's ISAAC Sim)
- Minimisation of the Sim2Real gap in simulation via appropriate emulation and tuning of physical quantities to accurately match real-world pick and place tasks and increase learning-based skill transferability
- Successful presentation of the system at IROS 2022 in Kyoto, Japan with day-long operation at the conference

The University of Edinburgh **Sep. 2019 – Present**
Teaching Assistant and Support *Edinburgh, United Kingdom*

- Tutor and demonstrator for the course Robotics and Science Systems (R:SS)
- Marking of R:SS and Informatics-/Research Review and Research Proposal for M.Sc./M.Sc.R. dissertations
- Supervisor for writing a literature review and research proposal for M.Sc. and M.Sc.R. students

Hellenic Army **Nov. 2016 – Jul. 2017**
Military Service with the Rank of Private in the Infantry Division (9 Months Obligatory) *Multiple Locations, Greece*

- Responsible for military time and service management tools and classified digital document correspondence

Audi AG **Nov. 2015 – May. 2016**

Software Engineer and Programmer (Internship) *Ingolstadt, Germany*

- Development of an innovative, state-of-the-art, virtual reality project in the Unity3D engine
- Integration of the latest mixed reality technologies into one system
- Design and programming with a strong emphasis on HCI, network communications and 3D modelling
- Demo presentation to internal and external industry partners Google, HTC (Vive) and Microsoft (HoloLens)
- Deployed a centralised monitoring environment to gather user performance metrics

SELECTED ACADEMIC PUBLICATIONS (JOURNALS & PROCEEDINGS)

- E. Triantafyllidis et al., **RObotic MAnipulation Network (ROMAN): Hybrid Hierarchical Learning for Solving Complex Sequential Tasks,** 2023, *in Nature Machine Intelligence* (Accepted, to be featured)

- E. Triantafyllidis and Z. Li, **The Challenges in Modeling Human Performance in 3D Space with Fitts' Law,** *in CHI Conference on Human Factors in Computing Systems (CHI '21).* Association for Computing Machinery, May 8–13, 2021, Yokohama, Japan. ACM, New York, NY, USA. DOI: 10.1145/3411763.3443442

- E. Triantafyllidis and Z. Li, **Considerations and Challenges of Measuring Operator Performance in Telepresence and Teleoperation Entailing Mixed Reality Technologies,** *in CHI Conference on Human Factors in Computing Systems Workshop CHI '21 (Evaluating User Experiences in Mixed Reality).* Association for Computing Machinery, May 7, 2021, Yokohama, Japan. ACM, New York, NY, USA.

- E. Triantafyllidis, W. HU, C. McGreavy and Z. Li, **Metrics for 3D Object Pointing and Manipulation in Virtual Reality: The Introduction and Validation of a Novel Approach in Measuring Human Performance**, *in IEEE Robotics & Automation Magazine*, doi: 10.1109/MRA.2021.3090070.
  Paper Invitation: Invited for ICRA 2021 as a Conference Paper.

- E. Triantafyllidis, C. McGreavy, J. Gu and Z. Li, **Study of Multimodal Interfaces and the Improvements on Teleoperation**, *in IEEE Access*, vol. 8, pp. 78213-78227, 2020, DOI: 10.1109/ACCESS.2020.2990080.

RECENT ACHIEVEMENTS, AWARDS AND INVITATIONS

- **Award: Best Student Case Study** in the Centre for Doctoral Training in Robotics and Autonomous Systems, Edinburgh, 1st of October 2021, UK. Annual Review 2020/21, Pages: 62-63.

LANGUAGES

- **English:** Proficient (C2 and IELTS: 7.5)
- **German** Proficient (Goethe C1: 87/100)
- **Greek:** Native Speaker

SKILLS & INTERESTS

- **General Skills:** Problem-solving; quantitative evaluation analysis; statistical evaluation methods; quality assurance; outreach and transferability of skills; ability to work in a team with leadership roles; effective use of language and concise transferability of ideas; effective use of PPT presentation slides in research meetings.
- **Programming:** C#, C++, Python, OCaml, Java, Visual C++/CLI (.NET), LaTeX. VHDL.
- **Simulation and Physics Engines:** Unity3D, Unreal Engine, MuJoCo, CryEngine.
- **Familiarity with Libraries and SDKs:** Oculus, LeapMotion, Tensorflow, Matplotlib, OpenCV, ML-Agents.
- **Applications:** IBM SPSS, Kdenlive, MATLAB, Autodesk, Blender, Photoshop, Visual Studio, Office.
- **Interests:** Running; Swimming; Reddit; Launching *(mostly successfully)* spacecraft in Kerbal Space Program.