Christos Sevastopoulos, Ph.D.

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📍 Chicago, IL   🪪 US Permanent Resident (Green Card)

EDUCATION

Ph.D. in Computer Engineering, *University of Texas at Arlington*　　　Aug 2019 – Dec 2023
Arlington, TX, United States
- Computer Vision, Robotics, Deep Learning
- Related Coursework: Machine Learning, Human-Computer Interaction, Data Analysis & Modeling, Data Structures & Algorithms Design

MS in Robotics, *University of Bristol*　　　Jan 2017
Concentration: Autonomous Vehicles & Control　　　Bristol, United Kingdom

BS in Physics, *National and Kapodistrian University of Athens*　　　Jul 2015
Athens, Greece

PROFESSIONAL EXPERIENCE

Postdoctoral Researcher, *University of Illinois Chicago*　　　Jan 2024 – present
Chicago, IL, United States
- Applying Diffusion and Transformer-based models for image super-resolution and signal denoising tasks in medical imaging, incorporating PubMedBERT for embedding text-based patient records to improve contextual understanding

Machine Learning Intern, *GN Group*　　　May 2022 – Aug 2022
Glenview, IL, United States
- Developed a scene understanding framework using SoundNet, CNNs, and YOLO, which helped identify and visualize key sound sources in audiovisual inputs

Machine Learning Intern, *National Centre of Scientific Research "Demokritos"*　　　May 2021 – Aug 2021
Athens, Greece
- Employed Deep Learning and the Unity game engine to design indoor and outdoor simulation environments for mobile robot navigation

TECHNICAL SKILLS

Programming Languages	**Libraries & Frameworks**	**Other Tools/ Software**
Python, SQL, C#, MATLAB	PyTorch, Keras, Tensorflow, NumPy, Pandas, Scikit-learn, OpenCV	Git, Azure, Spark, ROS

INDICATIVE PROJECTS

Ultrasound Super-Resolution using Diffusion models
Leveraged spatial attention and a diffusion U-Net model to enhance the image quality of low-frequency ultrasound images. utilizing AWS SageMaker for distributed training

LLM-based Multimodal Medical Data Understanding
Used the PubMedBERT NLP technique to combine medical imaging data (ultrasound) with text-based patient records to improve context for radiologists

Free-space Segmentation using RGB-D information
Developed a method achieving an 87% IoU for indoor free-space segmentation using depth-adaptive superpixel information from data collected by a mobile robotic platform, 2023 IEEE International Conference on Robotic Computing (IRC)

Mobile Robot RGB-Laser Sensor Fusion ⬈
Conducted high-level indoor scene understanding using sensor fusion, achieving approximately 92% peak accuracy, 2023 IEEE 19th International Conference on Automation Science and Engineering.

Indoors Mobile Robot Traversability Estimation using Transfer Learning ⬈
Fine-tuned a Vision Transformer using the Hugging Face models, achieving up to 93% accuracy on a small indoor robotic navigation dataset, 2022 Sixth IEEE International Conference on Robotic Computing (IRC)

NOTABLE PUBLICATIONS

Few-shot Traversability Segmentation of Indoor Robotic Navigation with Contrastive Logits Align, *IEEE CASE 2024*　　　2024
Qiyuan An, **Christos Sevastopoulos**, Farnaz Farahanipad, and Fillia Makedon

Learning Indoors Free-Space Segmentation for a Mobile Robot from Positive Instances, 2023
2023 Seventh IEEE International Conference on Robotic Computing (IRC), 21-24
Christos Sevastopoulos, Joey Hussain, Qiyuan An, Stasinos Konstantopoulos, Vangelis
Karkaletsis, Fillia Makedon

Enhancing Robustness of Indoor Robotic Navigation with Free-Space Segmentation Models 2023
Against Adversarial Attacks,
2023 Seventh IEEE International Conference on Robotic Computing (IRC)
Qiyuan An, Christos Sevastopoulos, Fillia Makedon

Indoors Traversability Estimation with RGB-Laser Fusion, *IEEE CASE 2023* 2023
Christos Sevastopoulos, Michail Theofanidis, Aref Hebri, Stasinos Konstantopoulos, Vangelis
Karkaletsis, Fillia Makedon

Towards Safe Visual Navigation of a Wheelchair using Landmark Detection, 2023
MDPI Technologies
Christos Sevastopoulos , Mohammad Zaki Zadeh , Michail Theofanidis, Sneh Acharya, Nishi Patel,
Fillia Makedon

An RGB-D Fusion System for Indoor Wheelchair Navigation, 2023
ACM PErvasive Technologies Related to Assistive Environments (PETRA) 2023
Christos Sevastopoulos, Sneh Acharya, Fillia Makedon

Indoors Traversability Estimation with Less Labels for Mobile Robots, 2022
2022 Sixth IEEE International Conference on Robotic Computing (IRC)
Christos Sevastopoulos, Michail Theofanidis, Mohammad Zaki Zadeh, Sneh Acharya, Stasinos
Konstantopoulos, Vangelis Karkaletsis, Fillia Makedon

A Survey of Traversability Estimation for Mobile Robots, *IEEE Access, Volume 10* 2022
Christos Sevastopoulos, Stasinos Konstantopoulos

A Simulated Environment for Robot Vision Experiments, *MDPI Technologies* 2022
Christos Sevastopoulos, Stasinos Konstantopoulos, Keshav Balaji, Mohammad Zaki Zadeh, Fillia
Makedon

Improving traversability Estimation Through Autonomous Robot Experimentation, 2019
Computer Vision Systems: 12th International Conference, ICVS 2019
Christos Sevastopoulos, Katerina Maria Oikonomou, Stasinos Konstantopoulos

TEACHING EXPERIENCE

Teaching Assistant, *University of Texas at Arlington* 2019 – 2023
CSE-5324: Software Engineering, Analysis, Design & Testing (Android Development)
CSE-2315: Discrete Structures

SERVICE

Reviewer, *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)* 2023

Reviewer, *Journal of Field Robotics* 2022 – 2023

Reviewer, *ACM PErvasive Technologies Related to Assistive Environments Conference* 2020 – 2023

Session Chair/ Coordinator, 2021 – 2023
ACM Pervasive Technologies Related to Assistive Environments Conference

AWARDS

Dissertation Fellowship Award, *UT Arlington* 2023
Summer Fellowship Award for a total of $8,000

Dean's Award, *UT Arlington* 2023
For research/travel purposes total of $1,000

Best Student Paper Award, *PETRA 2023 Conference* 2023
For the article 'An RGB-D Fusion System for Indoor Wheelchair Navigation'

Highest Impact Paper Award, *UT Arlington*
For presenting my work "Learning Indoor Free-space Segmentation for a Mobile Robot from
Positive Instances" among 22 PhD students,
2nd position $400