Niyati Rawal

CONTACT

Modena, Italy **(Work)**

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europass

WORK EXPERIENCE

11/2021 – CURRENT Modena, Italy

Early Stage Researcher (ESR) EU Marie Curie Project (PERSEO)

Working on Vision and Language Navigation that combines Computer Vision, Natural Language Processing and Robotics

06/2020 – 10/2021 Darmstadt, Germany

Research Assistant Technical University of Darmstadt

Worked on facial expressions in human-robot interaction

05/2019 – 09/2019 Nancy, France

Intern: Perception and interpretation of human activity Inria

Compared Markovian models for human activity recognition and prediction

10/2017 – 03/2018 Osaka, Japan

Trainee National Institute of Information and Communications Technology

Implemented RNN for explaining the development of visual attention to faces in infancy

EDUCATION AND TRAINING

11/2021 – CURRENT Modena, Italy

Doctoral studies: Information and Communication Technologies University of Modena and Reggio Emilia

Studying Vision and Language Navigation that combines Computer Vision, Natural Language Processing and Robotics

10/2018 – 09/2019 Tarragona, Spain

Master's in Computational Engineering and Mathematics Rovira i Virgili University, Open University of Catalonia

Numerical methods in engineering, Simulation, Graphs and Applications, Data Structures and Algorithms, Representation of Knowledge, Pattern Recognition, High Performance Computing, Error Correcting Codes

Thesis title: Top-down approach to compare the moral theories of Deontology and Utilitarianism in Pac-Man game setting

04/2014 – 03/2018 Osaka, Japan

B.E. Mechanical Engineering Osaka University

Mechanics of materials, Dynamics of machinery, Hydraulics, Thermodynamics, Modeling and control of dynamic systems, Programming, Mathematical analysis

Conducted 1 year research in the Department of Adaptive Machine Systems.

Thesis title: The role of featural and configural processing in the development of visual attention

04/2013 – 03/2014 Tokyo, Japan

Certificate in Japanese Language Tokyo University of Foreign Studies

2009 – 2012 New Delhi, India

High School Convent of Jesus and Mary School

LANGUAGE SKILLS

MOTHER TONGUE(S): Hindi | English

Other language(s):

Japanese

Listening C2
Reading C2
Writing C2
Spoken production C2
Spoken interaction C2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

ADDITIONAL INFORMATION

Projects

Vision and Language Navigation

- Proposed a computational model that can **exchange dialogue** with an agent during Vision and Language Navigation
- Improving the performance of the Vision and Language Navigation Models by augmenting the dataset using a novel **speaker model**

Publications

Conference Papers

Poppi, Samuele, Roberto Bigazzi, Niyati Rawal, Marcella Cornia, Silvia Cascianelli, Lorenzo Baraldi, and Rita Cucchiara. **"Towards Explainable Navigation and Recounting."** In *International Conference on Image Analysis and Processing*, pp. 171-183. Cham: Springer Nature Switzerland, 2023.

Journal Papers

Niyati Rawal and Ruth Maria Stock-Homburg, "**Facial emotion expressions in human-robot interaction: A survey**", International Journal of Social Robotics, 2022.
Niyati Rawal, Dorothea Koert, Cigdem Turan, Kristian Kerstins, Jan Peters and Ruth Stock-Homburg, **"ExGe nNet: Learning to Generate Robotic Facial Expressions using Facial Expression Recognition"**, Frontiers in Robotics and AI, 2022.

Workshop Papers

Yukie Nagai and Niyati Rawal, "**Where and Why Infants Look: A recurrent neural network for the development of visual attention**", in Proceedings of the 21st Biennial International Congress on Infant Studies, June 30-July 3, 2018.
Niyati Rawal and Yukie Nagai, "**Computational Modelling Approach to Investigate the Development of Scan Paths in Infants**", The 6th Symposium of Japanese Society of Developmental Neuroscience, November 25-26, 2017.
Niyati Rawal, Takato Horii, and Yukie Nagai, "**How does visual attention to face develop in infancy?: A computational account**", in Proceedings of the HAI 2017 Workshop on Representation Learning for Human and Robot Cognition, October 17, 2017.

Honours and awards

Scholarships Marie Skolodowska-Curie Actions Fellowship - PERSEO Project
Monbukagakusho (MEXT) Scholarship: Received 5 year scholarship by the Japanese Government to pursue my bachelor degree in Japan
CJM PTA Schoalrship for consistent effort (2010)
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Competitions RoboCup Japan Open (2017): It is a robot soccer league where the robots operate autonomously. Our team JoiTech won the first prize.

Programming

Coding skills

C/C++ : Have written codes for a line tracer robot, to perform simulation for a robotic arm, picture editing using OpenCV and a code to create a game using ODE
Python: For machine learning
Java: AI game
Matlab: For numerical methods in engineering
Ruby: Attended Ruby Camp (2017) in Matsue, Japan

Organisational skills

Organisational skills Was a member of the Robotics Club at school. Participated in an inter-school Catch Robot Battle Contest (2015). It was a team based event where I directed the designing and assembly of the robot.

Communication and interpersonal skills

Communication and interpersonal skills Excellent communication skills with high school students gained through my experience as a Math tutor.