Luca Scimeca, Ph.D. Candidate

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Employment History

2020–current
- **Postdoctoral Research Associate (AI and Robotics)** at University of Cambridge, United Kingdom.
- **Postdoctoral Research Associate at Trinity Hall**, University of Cambridge, United Kingdom.

2020
- **Freelance Writer in Artificial Intelligence** at Academic Minds, London, UK.

2017 – 2020
- **Demonstrator** for "Engineering Tripos Part IIA - 3D Printing", University of Cambridge, Cambridge, UK.
- **Demonstrator** for "Machine Learning: 3F8 Inference", University of Cambridge, Cambridge, UK.
- **Demonstrator** for "Robotics: Part IA Lego", University of Cambridge, Cambridge, UK.

2018 – 2019
- **Artificial Intelligence Consultant** at Critical Future, London, UK.

2016
- **Junior Software Engineer** at Extraordinary Managed Services Ltd, Edinburgh, UK

Education

2017 – 2020
- **Ph.D. in Engineering (AI and Robotics), University of Cambridge, United Kingdom.**

2019
- **Brains, Minds, and Machines AI summer course, Massachusetts Institute of Technology (MIT), United States**

2013 – 2017
- **BEng (Hons) in Software Engineering and Artificial Intelligence, University of Edinburgh, United Kingdom.**
  First Class Honours (summa cum laude) - 4.0 GPA, Department prize and Howe Prize for highest cumulative GPA of graduating class

Research Publications

Book Chapters

1. Hughes, J., Birell, S., **Scimeca**, **L.** & Iida, F. (forthcoming). Field robotics for harvesting. Elsevier.
2. **Scimeca**, **L.** & Iida, F. (forthcoming). Soft robotics: A developmental approach. MIT Press.

Journal Articles

1. He, L., Herzig, N., de Lusignan, S., **Scimeca**, **L.**, Maiolino, P., Iida, F. & Nanayakkara, T. (forthcoming). An abdominal phantom with tunable stiffness nodules and force sensing capability for palpation training. *IEEE Transactions on Robotics*.
2. **Scimeca**, **L.**, Hughes, J., Maiolino, P., He, L., Nanayakkara, T. & Iida, F. (forthcoming). A bayesian framework for multi-axis soft-body palpation. *Soft Robotics*.
3. **Scimeca**, **L.**, Ng, C. & Iida, F. (2020). Gaussian process inference modelling of dynamic robot control for expressive piano playing. *PLOS ONE*, *15*(8), 1–17. https://doi.org/10.1371/journal.pone.0237826
4. **Scimeca**, **L.**, Maiolino, P., Bray, E. & Iida, F. (2020). Structuring of tactile sensory information for category formation in robotics palpation. *Autonomous Robots*, 1–17.

5. Hughes, J., Gilday, K., **Scimeca**, **L.**, Garg, S. & Iida, F. (2019). Flexible, adaptive industrial assembly: Driving innovation through competition. *Intelligent Service Robotics*, 1–10.
6. **Scimeca**, **L.**, Hughes, J., Maiolino, P. & Iida, F. (2019). Model-free soft-structure reconstruction for proprioception using tactile arrays. *IEEE Robotics and Automation Letters*, *4*(3), 2479–2484.
7. Hughes, J., **Scimeca**, **L.**, Ifrim, I., Maiolino, P. & Iida, F. (2018). Achieving robotically peeled lettuce. *IEEE Robotics and Automation Letters*, *3*(4), 4337–4342.
8. Stone, T., Webb, B., Adden, A., Weddig, N. B., Honkanen, A., Templin, R., Wcislo, W., **Scimeca**, **L.**, Warrant, E. & Heinze, S. (2017). An anatomically constrained model for path integration in the bee brain. *Current Biology*, *27*(20), 3069–3085.

Conference Proceedings

1. **Scimeca**, **L.**, Maiolino, P. & Iida, F. (forthcoming). Self-supervised learning through scene observation for selective item identification in conveyor belt applications, In *Annual conference towards autonomous robotic systems*. Springer.
2. **Scimeca**, **L.**, Iida, F., Maiolino, P. & Nanayakkara, T. (2020). Human-robot medical interaction, In *Companion of the 2020 acm/ieee international conference on human-robot interaction*.
3. **Scimeca**, **L.**, Maiolino, P. & Iida, F. (2020). Efficient bayesian exploration for soft morphology-action co-optimization, In *2020 3rd ieee international conference on soft robotics (robosoft)*. IEEE.
4. **Scimeca**, **L.**, Maiolino, P., Cardin-Catalan, D., del Pobil, A. P., Morales, A. & Iida, F. (2019). Non-destructive robotic assessment of mango ripeness via multi-point soft haptics, In *2019 international conference on robotics and automation (icra)*. IEEE.
5. **Scimeca**, **L.**, Maiolino, P. & Iida, F. (2018). Soft morphological processing of tactile stimuli for autonomous category formation, In *2018 ieee international conference on soft robotics (robosoft)*. IEEE.

Skills

Coding	• Python, C++, C, Java, MATLAB, Haskell, Assembly, SQL, XML/XSL
Misc.	• TensorFlow, PyTorch, Keras, Darknet, ROS, V-Rep, PyBullet, CAD, 3D-Printing
Languages	• English (fluent), Italian (native), Japanese (beginner)

Miscellaneous

Academic Services

2020	• **Workshop Co-organizer** 'Robot-Assisted Training for Primary Care: How can robots help train doctors in medical examinations?' Workshop at the International Conference on Intelligent Robots and Systems (IROS), October 25-29, Las Vegas, Nevada, USA (2020)
	• **Workshop Organizer** 'Human-Robot Medical Interaction' Workshop at the 15th Annual ACM/IEEE International Conference on Human Robot Interaction, Cambridge, UK (2020)
2018	• **Workshop Co-organizer** 'Agri-Food Robotics', Cambridge, UK (2018)
2017 – current	• **Reviewer** for Journal 'IEEE Robotics and Automation Letters'.
	• **Reviewer** for Journal 'Applied Sciences'.
	• **Reviewer** for 'International Conference on Robotics and Automation' (ICRA).
	• **Reviewer** for 'IEEE International Conference on Soft Robotics' (RoboSoft).

Awards and Achievements

2020	• **GMSI** Summer Camp, Tokyo University

Miscellaneous (continued)

2018
- **AJS Special Award** for Industrial Manipulation Challenge, World Robotics Summit 2018, Tokyo, Japan.
- **1st Place Award** Robot Rescue Simulation League, RoboCup 2018, Montreal, Canada.
- **1st Place Award** at "RoboSoft Competition - Manipulation", RoboSoft 2018 IEEE Conference on Soft Robotics, Livorno, Italy.

2017
- **Howe Undergraduate Prize**, The University of Edinburgh, United Kingdom.
  Best performance in Artificial Intelligence of the graduating class.
- **BEng AI & SE class Prize**, The University of Edinburgh, United Kingdom.
  Highest cumulative grade of the graduating class.

2016
- **Winner of Robotic 2-a-side Football Tournament** (System Design Project), The University of Edinburgh, United Kingdom.

2015
- **Edinburgh Award**, University of Edinburgh, United Kingdom..

2014
- **Hackathon Winner**, The Smart Data Hack, Edinburgh, United Kingdom.

2013,10,09
- **Scholarship "Borsa di Studio Benivegna"**, three times winner.
  Highest final cumulative grade achieved in current year of "Vittorio Emanuele III", Palermo, Italy.

2013
- **Informatics Diploma**, graduated with a score of 100 in "Esami di Stato", Palermo, Italy.

2010
- **Scholarship "Premio di studi prof. Erasmo Siino"**
  Highest final grade achieved among all students in the town of Capaci, Palermo, Italy.

Relevant Projects

2019
- **Coding With Neural Networks**, MIT, United States.
  Developed a novel compositional neural network achitecture shown to be able to both learn to play 'Game of Life' on arbitrarily long boards as well as perform 'parity bit checking' on arbitrarily long bite strings.

2017
- **RoboAnt Research Project**, Edinburgh, United Kingdom.
  Implemented path integration network on an android application based on an insect brain model (mobile-powered, bio-inspired robotics).

2016
- **CIFAR Image Classification with Deep Neural Networks**, Edinburgh, United Kingdom.
  Achieved state of the art performance on CIFAR-10 and CIFAR 100 dataset; Devised new Multi-task Learning procedures.
- **Robot-Football**, Edinburgh, United Kingdom.
  Built autonomous robot for two-a-side football game, including: autonomous path planner, image tracking and recognition, physical design and implementation.

2015
- **Bidirectional Transformations**, Edinburgh, United Kingdom.
  Researched in the area of Bidirectional Transformations; implemented Object Oriented prototype in Java.
- **Carneades Argumentation System**
  Developed a python implementation of the Carneades System of argument evaluation (Artificial Intelligence).

References

Dr Fumiya Iida
University of Cambridge,
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Prof Perla Maiolino
University of Oxford,
perla.maiolino@eng.ox.ac.uk