

James Stedman

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Research Focus

PhD researcher in multilingual natural language processing, developing cognitively inspired methods for resolving ambiguity in English–Japanese machine translation. Combining multimodal context from robotic perception with computational models of the theory of mind to resolve pragmatic ambiguity.

Education

University of Kent Canterbury, UK
PhD in Computer Science – expected graduation September 2028 September 2024 – present
• Thesis: *Using robotic grounding and computational theory of mind models to resolve ambiguity in machine translation between English and Japanese.* Supervisor: Ioanna Giorgi.

University of Kent Canterbury, UK
BSc (Hons.) in Computer Science, 2:1 2017 – 2021

Research Experience

PhD Researcher, School of Computing September 2024 – present
University of Kent Canterbury, UK
• Developed a novel cognitive modelling approach to quantifier scope ambiguity in English–Japanese MT; with low-resource training, it achieved up to 40 points higher accuracy than deepseek-r1:8b, gpt-oss:20b, llama3.1:8b, and gemma3:4b on scope-ambiguous sentences (IEEE ICICR 2026).
• Building a parallel English–Japanese politeness dataset based on the Stanford Politeness Corpus, in which native Japanese speakers translate English sentences into multiple Japanese sentences in varying levels of politeness.
• Developing a computational theory-of-mind model that infers the speaker–listener relationship from context to select the appropriate level of Japanese politeness, which English sentences typically leave unspecified.
• Building a ROS 2 pipeline to connect the above model with the SoftBank Pepper robot, to test if additional visual and auditory input can further improve accuracy.

Additional Experience

AI and Web Development Engineer June 2019 – August 2020
Fox Robotics Surrey, UK
• Researched and experimented with reinforcement learning-based techniques for autonomous navigation for Hugo RT, leading to 5% faster planning and a 3% lower collision rate for the local planner.

Publications

[1] **James Stedman**, Ioanna Giorgi, Giovanni Masala. A Cognitive Approach to Resolving Semantic Ambiguity in Quantifier Interpretation for Machine Translation. Accepted to the International Conference on Intelligent Computing and Robotics (IEEE ICICR), 2026.

Skills

Programming	Python, C++ , Java, C, Haskell
ML / NLP	PyTorch, Hugging Face Transformers, spaCy
MT evaluation	sacreBLEU, COMET, CometKiwi, human evaluation design
Robotics	ROS 1&2, Webots, Choregraphe, Unitree Go2 and G1
Tools	Git, Linux, Docker, GPU clusters / SLURM, Apptainer
Languages	Advanced proficiency in Japanese (JLPT N2)

Awards

• Graduate Teaching Assistant Scholarship, University of Kent, 2024.