Sameer Bansal

– Edinburgh – UK

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PhD student at the University of Edinburgh, within the Institute for Language, Cognition and Computation (ILCC). My research interests include machine learning and speech processing for low resource languages. My past experience includes studying computer science, developing software for embedded systems and designing wireless protocols for Honeywell India.

Education

Academic Qualifications

- **University of Edinburgh** — **Edinburgh, UK**
  PhD Informatics, research topic: speech processing for low resource languages — *2016–*
- **University of Edinburgh** — **Edinburgh, UK**
  MSc (with distinction) Artificial Intelligence — *2014–2015*
  Taught coursework score: 84.5%, program rank: 3 of 65
  Specialization (dual): Machine Learning and Intelligent Robotics
- **Stevens Institute of Technology** — **Hoboken, NJ, USA**
  Bachelors (High Hons) Computer Science, GPA: 3.73 / 4.00
- **Delhi Public School, R.K. Puram** — **New Delhi, India**
  12th Boards, CBSE, 84%

Relevant Courses

Machine Learning and Pattern Recognition, Probabilistic Modeling and Reasoning, Machine Translation

Technical skills

- **Programming Languages:** Python, MATLAB, C
- **Machine Learning frameworks:** TensorFlow (used moderately), Chainer (proficient)
- **Practical Machine Learning:** neural-network models for speech translation. Implemented code to train an encoder-decoder with attention model in Python using the Chainer framework. Comfortable with state-of-the-art neural network models which combine RNNs (LSTM, GRU) with CNNs and attention to predict text sequence from continuous input data.

Relevant Work Experience

- **University of Edinburgh** — **Edinburgh, UK**
  Teaching Assistant for MSc level Machine Translation course — *January 2017–May 2017*
  Developed course material such as labs and assignments for data exploration and training neural language and machine translation models.
- **Honeywell - Wireless Center of Excellence** — **Bangalore, India**
  Wireless Protocol Software Developer — *January 2010–January 2014*

Worked as part of a specialist Wireless group helping various Honeywell businesses integrate wireless technology into their product portfolios. Part of the team which developed one of the first commercial wireless fire alarm systems for the UK (and global) markets. Received a Honeywell Life Safety **Technical Achievement Award** for this effort. **Filed multiple patents** related to overcoming design challenges in developing wireless protocols for safety critical systems.
In addition to my primary role as a software developer, I consulted with multiple specialist groups from mechanical engineers to intellectual property lawyers, **helping the company to avoid costly redesigns**. I also worked with **global teams**, often putting in long hours across three time zones to support multiple projects while maintaining a high quality of work that colleagues came to count on.

- **Stevens Institute of Technology** **Hoboken, NJ, USA**
  Academic tutor
  Tutored undergraduate students in Calculus and Discrete Math, Science - Physics, Chemistry, and programming subjects.

Publications + Patents

- "Towards speech-to-text translation without speech recognition," in Proc. EACL, 2017, S. Bansal, H. Kamper, A. Lopez, S. Goldwater
- "Weakly supervised spoken term discovery using cross-lingual side information," in Proc. ICASSP, 2017, S. Bansal, H. Kamper, S. J. Goldwater, and A. Lopez
- US Patent number: 9295066 - Method of coexistence of multiple wireless fire systems
- US Patent number: 8553664 - Field optimized, configurable wireless fire system

Notable MSc Projects

- **Masters Dissertation:** *'Speech Translation without Speech Recognition'*
  Language translation systems currently exist only for a handful of popular languages. My **motivation** for this topic was to try and develop translation services for a wider set of languages. A possible application would be disaster recovery efforts such as earthquakes in remote regions where international rescue workers can face challenges in organizing aid work if the local language is not one of the mainstream languages.
- **Decision Making in Autonomous Agents - Course Assignment :** *'Reinforcement Learning based self-driving car simulation'*
  This assignment involved implementing Reinforcement Learning algorithms such as Q-learning and tuning their parameters in **MATLAB**. The agent was simulating an **autonomously driven car** in a dynamic environment. The goal was to minimize collisions with obstacles and to formulate self-driving policies which would generalize to unseen road conditions.

Interests and extra-curricular activity

- Participating in Data science and NLP workshops. Recently took part in the "Data Study Group: Industrial Collaboration" workshop (May 2017) organized by the Alan Turing Institute in London.
- Attending talks, seminars and listening to podcasts in a wide variety of topics including science, technology, global events and story telling.

References

- Available upon request