

Cassio Batista

MSc in Computer Science, 26



Education

- 2018–today **Doctoral degree**, *Federal University of Pará (UFPA)*, Belém, Brazil, ongoing.
PhD in Computer Science at Programa de Pós Graduação em Ciência da Computação (PPGCC)
- 2016–2017 **Master's degree**, *Federal University of Pará (UFPA)*, Belém, Brazil.
MSc in Computer Science at Programa de Pós Graduação em Ciência da Computação (PPGCC)
Dissertation title: *A proposal of a universal, multimodal remote control system based on head gestures and voice commands.*
- 2014–2015 **Information Technologist**, *Óbuda University (OE)*, Budapest, Hungary.
Former exchange student in Informatics at Neumann János Informatikai Kar (NIK)
- 2011–2016 **Bachelor's degree**, *Federal University of Pará (UFPA)*, Belém, Brazil.
BSc in Computer Engineering at Faculdade de Engenharia da Computação (FCT)

Experience

- 2017–2018 **PhD Research**, *LabVIS, UFPA*, Belém, Brazil.
This ongoing research tackles the speech recognition problem under the deep neural networks (DNNs) perspective by using the Kaldi toolkit. HTK's toolkit has also released a version with support to DNNs, which must also be explored through research. Regarding speech synthesis, our first goal is to exploit machine learning techniques provided by TensorFlow library to select the parameters of the Klatt88 formant-based speech synthesizer. Next, we will investigate the feasibility of an end-to-end speech synthesizer for Brazilian Portuguese, similar to Google's Tacotron.
- 2016–2017 **MSc Research**, *LabVIS, UFPA*, Belém, Brazil.
The project aimed at developing a multimodal, universal remote control system that could be accessible for and affordable by upper-limb motor impaired people. Head gestures were recognized by computer vision techniques, thanks to OpenCV library, while speech interface could be implemented via CMU Sphinx API.
- 2016 **Research Internship**, *Embrapa*, Belém, Brazil.
This project tackles the routing and wavelength assignment (RWA) problem for wavelength-multiplexed optical networks with static traffic. My job was to develop a genetic algorithm to solve the problem under some constraints.
- 2015–2016 **Research Internship**, *LabVIS, UFPA*, Belém, Brazil.
The goal was to develop a speech interface for Moodle platform based on CMU Sphinx tools. Scenarios for mouse and keyboard were created under the Simon software environment.
- 2014–2015 **Research Internship**, *NIK, OE*, Budapest, Hungary.
The goal was to develop modules for a personal home assistant, Turtlebot-based robot called "Teki". My job was to develop an Android and a desktop application to control Teki via speech interface. Advisor: Szabó-Resch Miklós Zsolt.

2012–2013 **Research Internship**, *LaPS*, UFPA, Belém, Brazil.

Project in cooperation with Comunix Tecnologia e Soluções Corporativas LTDA created in order to test speech recognition systems on VoIP telephony platforms. My part was to develop a PyQt4-based GUI with Julius decoder embedded to test context-free grammars in an easy way.

2012 **Research Internship**, *LaPS*, UFPA, Belém, Brazil.

Development of dictation tool in Brazilian Portuguese for LibreOffice suite, called SpeechOO.

Languages

Portuguese Native speaker

English Advanced

Good at reading, writing and listening; intermediate at speaking

Computing skills

Languages C, Python, MATLAB, Java, C++, \LaTeX

Toolkits HTK, CMU Sphinx, OpenCV, Scikit learn

OS Linux (including embedded such as Ångström and Raspbian), Windows

Embedded Beaglebone Black, NTC's C.H.I.P., Raspberry Pi 3 and Raspberry Pi Zero W

Awards

2017 **Hackaday Prize**, among the 20 best projects on the *Assistive Technology* challenge.

2017 **Hackaday Prize**, among the 20 best projects on the *Anything Goes* challenge.

Publications

- [1] Cassio Batista, Ana Larissa Dias, and Nelson Sampaio Neto. Baseline acoustic models for brazilian portuguese using kaldi tools. In *Proc. IberSPEECH 2018*, pages 77–81, 2018.
- [2] Cassio Batista, Diego Teixeira, Thiago Coelho, and Josivaldo Araújo. Static-traffic routing and wavelength assignment in transparent wdm networks using genetic algorithm. In *Proceedings of the 10th Latin America Networking Conference, LANC '18*, pages 56–63, New York, NY, USA, 2018. ACM.
- [3] Diego Bento A. Teixeira, Cassio T. Batista, Afonso Jorge F. Cardoso, and Josivaldo de S. Araújo. A genetic algorithm approach for static routing and wavelength assignment in all-optical wdm networks. In *Progress in Artificial Intelligence*, pages 421–432, Cham, 2017. Springer International Publishing.
- [4] Cassio T. Batista, Erick M. Campos, and Nelson C. Sampaio Neto Neto. A proposal of a universal remote control system based on head movements. In *Proceedings of the XVI Brazilian Symposium on Human Factors in Computing Systems, IHC 2017*, pages 2:1–2:10, New York, NY, USA, 2017. ACM.
- [5] Fábio Miranda, Cassio Batista, Artur Silva, Jefferson Moraes, Nelson Neto, and Rommel Ramos. Improving metagenomic assemblies through data partitioning: A gc content approach. In *Bioinformatics and Biomedical Engineering*, pages 415–425, Cham, 2018. Springer International Publishing.
- [6] Cassio Batista, Thiago Coelho, Bruno Haick, Nelson Neto, and Aldebaro Klautau. LaPS CSR: A free distributed cloud speech recognition system. In *XIX International Scientific Conference for Young Engineers*, 2014.

- [7] Cassio Batista, Thiago Coelho, Bruno Haick, Nelson Neto, and Aldebaro Klautau. Desenvolvimento e comparação de reconhecedores de fala embarcados e distribuídos para android. In *XXXI Brazilian Telecommunications Symposium*, 2013.