

Alberto Pettarin, PhD

CURRENT POSITION	Principal Software Engineer, TTS R&D, Cerence, Inc.
PROFESSIONAL INTERESTS	Text to Speech Natural Language and Speech Processing Text and Data Mining High Performance Computing
EDUCATION	University of Padova , Padova, Italy 2009-01–2011-12 <i>PhD Information Engineering (Dottorato di Ricerca)</i> <ul style="list-style-type: none">• Thesis: Graph Models of Information Spreading in Wireless Networks• Advisors: Professor Geppino Pucci jointly with Professor Andrea Pietracaprina• I studied stochastic graph models of information spreading processes in wireless networks, with emphasis on mobile networks. 2006-10–2008-07 <i>MSc Computer Engineering (Laurea Magistrale)</i> <ul style="list-style-type: none">• Thesis: On the Diameter of Bluetooth-Based Ad Hoc Networks• Final grade: 110/110 <i>cum laude</i>, GPA 29.85/30 over 13 exams, 9 exams <i>cum laude</i> 2003-10–2006-07 <i>BSc Information Engineering (Laurea)</i> <ul style="list-style-type: none">• Thesis: DocTrivXlet: a Java Micro Edition Application for the MFP Ricoh Aficio 2051• Final grade: 110/110 <i>cum laude</i>, GPA 29.17/30 over 21 exams, 7 exams <i>cum laude</i>
PROFESSIONAL EXPERIENCE	Cerence, Inc. , Turin, Italy 2019-10–present <i>Principal Software Engineer</i> <ul style="list-style-type: none">• I have been a member of the text-to-speech research and development (TTS R&D) organization of Cerence since its spin-off from Nuance Communications.• I contributed to the launch of Cerence Reader, a state-of-the-art, AI-based TTS product for reading long-form text. I participate in the evolution of the core technology, and I also take part in the design and implementation of related cloud services. I created the proof-of-concept newscaster cloud service initially used for demoing the human-like voice quality of Cerence Reader. (Celery, Flask, Gunicorn, Python, TensorFlow, NVIDIA Triton)• I have a leading role in the integration of a third-party TTS engine for the Japanese language in the Cerence TTS code base. (C, C++)• I introduced a novel test framework for Cerence TTS products, which helped detecting several latent defects, and significantly simplified and promoted the addition of unit tests for new features being developed. (RobotFramework, Python)• While I keep contributing to the day-to-day activities of the TTS Engineering Team, I am increasingly being involved in R&D projects spanning multiple organizations (ASR, Cloud, NLG, NLU, Professional Services, TTS), often as coordinator for the TTS Engineering tasks.• I also help with team management tasks, such as hosting daily scrum meetings, performing sprint reviews and planning, mentoring junior colleagues. I conducted hiring interviews, and I acted as the TTS product owner <i>ad interim</i> on behalf of my direct manager on several occasions, up to two weeks at a time. Nuance Communications, Inc. , Turin, Italy 2019-07–2019-09 <i>Principal Software Engineer</i> 2017-06–2019-06 <i>Senior Software Engineer</i> <ul style="list-style-type: none">• I was a member of the text-to-speech research and development (TTS R&D) team.• I contributed to the day-to-day activities of the team, including development of new product features, defect triaging and resolution, code reviews, and maintenance or extension of test suites. (C, Python)• I designed and implemented a Python wrapper providing a unified interface on top of the C APIs of the two main TTS products (Vocalizer Embedded and Vocalizer Server). This wrapper was used to drive TTS engines within a proprietary Python test framework, and it greatly reduced the cost of voice acceptance testing, in terms of computing resources and maintenance effort. (Python, Python C API)• I participated in a project of internal innovation, focussing on improving the quality and performance of NLP modules in the TTS core engine and on facilitating the work of voice developers via Lua scripting. (C, Lua)• Occasionally I conducted hiring interviews and I took the role of TTS product owner on behalf of my manager while he was on personal leave.

Freelance, Venice, Italy

2015-07–2017-05 *Freelance Python/C Developer*

- Selected projects: I tuned and extended an optimization MILP kernel for industrial packing applications (Java, C, CPLEX); I developed C extensions for computing MFCC and DTW for the forced alignment package **aeneas** (Python, C); I maintained the **Menestrello** app (Cordova, JavaScript, Java, ObjC); and I designed the **aeneas** Web application (Python, Flask).

ReadBeyond (formerly, Smuuks), Padova, Italy

2012-09–2015-06 *(Co-Founder, CEO, and) Head of Research*

- ReadBeyond (<https://www.readbeyond.it/>) was a research lab which developed innovative solutions for creating, distributing, and enjoying digital contents. I was the lead developer of our two main projects: **aeneas** (automated audio/text synchronization) and **Menestrello** (Android/iOS app for reading+listening EPUB 3 Audio-eBooks).

Brown University, Providence, RI, USA

2010-01–2011-06 *Visiting Research Scholar*

- Host: Professor Eli Upfal
- Head Teaching Assistant for CSCI1580 “Information Retrieval and Web Search” (Spring’10 and Spring’11)

University of Padova, Padova, Italy

2012-11–2013-12 *Research Collaborator*

- I supervised student projects and theses involving mobile platforms and eBooks.

2008-09–2012-12 *Reviewer*

- For 2 Journals and 10 Conferences in Theoretical Computer Science and Distributed Computing.

2012-02–2012-10 *Research Collaborator*

- Working on a Data Mining Research Project funded by Tektronix
- I was responsible of devising new algorithmic techniques for mining quantitative association rules, and implementing them in a proof-of-concept DM tool.

2009-01 *Chartered Engineer Examination (Esame di Stato per l’Albo degli Ingegneri)*

2008-10–2008-12 *Research Assistant*

- European Union research grant to study diameter and expansion of Bluetooth Topology graphs, under FP6-IST/IP Project AEOLUS.





2007-10–2009-09 *Teaching Assistant*

- 4 editions of “Introduction to Computer Programming” and “Calculus I” for engineers.

PROGRAMMING

- **Excellent:** Python 2/3, Python C API
- **Good:** C, Flask, GCC, Lua, MSVC, Numpy, NVIDIA Triton, SSML, TensorFlow, XML
- **Routine use of:** Artifactory, Awesome WM, Bash, clang/LLVM, Debian GNU/Linux, git, Jenkins, macOS, Mercurial, Scons, Visual Studio, Windows
- **Digital Publishing and NLP:** EPUB 2/3, L^AT_EX, Media Overlays, MOBI/KF8, NLTK, Pattern, Polyglot, spaCy
- **Also worked with:** Android, Arduino, Celery, Cordova, CPLEX, Gunicorn, iOS, Java, JavaScript, nginx, Objective-C, PyTables, Redis, rq, SciPy, Tensorflow

SELECTED FREE SOFTWARE/OPEN SOURCE PROJECTS

- **aeneas:** automated synchronization of audio and text (Python, NumPy, C) 
- **aeneasweb.org:** Web App for **aeneas** (Python, Flask, Gunicorn, nginx, rq, Redis) 
- **glyphIgo:** a Swiss Army knife for dealing with fonts and EPUB eBooks (Python) 
- **Penelope:** a multi-tool for creating, editing and converting dictionaries (Python) 

Full list: <https://github.com/pettarin/> and <https://github.com/ReadBeyond/>

HONOURS AND AWARDS

- 2019-05** Nuance Spot Award, Burlington, MA, USA
- 2018-06** Nuance Spot Award, Burlington, MA, USA
- 2014-11** First Prize at the “Librinnovando Awards 2014“, Milan, Italy
- 2012-09** Fellowship to attend *The International Summer School on Entrepreneurial Management and Innovation 2012*, Desenzano del Garda, Italy
- 2010-01–2011-12** “Fondazione Ing. Aldo Gini” Fellowship to conduct research abroad

2008-11 “Leonardo Melandri” Fellowship to attend *The 4th Bertinoro Workshop on Randomized Algorithms and Graphs*, Bertinoro, Italy

2003-10 “Alfiere del Lavoro” Prize of the President of Italy to the best 25 high school students

PUBLICATIONS

- List from the DBLP: <http://dblp.uni-trier.de/pers/hd/p/Pettarin:Alberto.html>
- Preprints: <https://www.albertopettarin.it/cv.html>

PRESENTATIONS

- *3 Presentations*, including an introduction to RobotFramework, Internal TTS Training Series, Cerence, 2019–2020
- *4 Presentations*, including an introduction to Python C API and another on Lua, Internal TTS Training Series, Nuance, 2017–2019
- *The Journey of aeneas: a Python Adventure in Text and Speech*, PyCon Italia, Florence, Italy, 2017-04-08
- *EPUB 3 Audio-eBooks and Reading Apps*, CILP 2016, Feltre, Italy, 2016-04-16
- *Improving Literacy With Audio-eBooks*, Librinovando 2014, Milan, Italy, 2014-01-14
- *Anatomy of a Strange Digital Project: Dante meets Queneau*, EbookCamp 2012, Loreto, Italy, 2012-09-29
- Mini-course: *Pills of L^AT_EX*, PhD School in Pharmaceutical Sciences, Padova, Italy, 2012
- *L^AT_EX to EPUB: a Poor Man’s Guide to Publishing Math Ebooks*, EbookCamp 2011, Loreto, Italy, 2011-10-23
- *Tight Bounds on Information Dissemination in Sparse Mobile Networks*, PODC 2010, San Jose, CA, USA, 2010-06-08
- *On the Expansion and Diameter of Bluetooth-Like Topologies*, ESA 2009, Copenhagen, Denmark, 2009-09-09
- Mini-course: *L^AT_EX’s Fabulous World*, IEEE Student Branch, Padova, Italy, 2008

LANGUAGES

Italian (native), English (fluent)

CONTACT
INFORMATION

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LAST UPDATE

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I authorize the use of my personal data in accordance with the Italian Privacy Protection Law (30/06/2003, n. 196/03).