David Campos

📞 (+351) 910 735 271

📍 Rua Sra. das Dores, nº. 46, Silveiro
3770-066 Oiã
Aveiro, Portugal

✉ **david.marques.campos@gmail.com**

🔗 **www.davidcampos.org**

PROFILE

With experience in multiple fields, including software development, research and team leading, I am a versatile and enthusiastic individual that wants to learn and take on new challenges.

My passion is to design powerful and scalable software solutions, ranging all ends of the development spectrum, including the design and implementation of innovative web applications, services, frameworks and APIs. I am always pushing myself to learn new concepts and techniques, namely in web development, machine learning, information extraction, medical imaging and team leading.

EXPERIENCE

Team Leader for Partnering Diagnostics and Data Analysis   June 2017 - present
Bosch Thermotechnology, Aveiro, Portugal

• Lead a **team of 5 developers** to build innovative solutions for smart diagnostics and predictive maintenance of HVAC appliances, taking advantage of advanced operational data mining approaches;

Chief Technology Officer (CTO)   February 2014 - May 2017
BMD Software Lda., Aveiro, Portugal

• Lead a **team of 4 developers** with **in-depth contributions** in software **architecture**, **development**, **testing**, **deployment**, **maintenance** and **customer support** of two **high-demanding web-based products**:

  – Web-based medical imaging platform for patient images storage, visualization, printing and sharing, enabling simple and efficient workflows in hospitals, clinics and laboratories;

  – Biomedical text mining web services targeting automatic extraction of information (entities and their relations) from scientific texts for pharmaceuticals and research centers.

• Responsible for contacting new customers and for maintaining valuable relationships for the company;

• Responsible for representing the company in national and international conferences, workshops and fairs;

• Responsible for building and maintaining the technological infrastructure for internal management, development and maintenance of the company.

Ph.D. Researcher   January 2008 - January 2014
IEETA, University of Aveiro, Aveiro, Portugal

• Developed 6 web-based applications for biomedical information extraction, namely automatic named entity recognition and assisted documents curation;
• Delivered and contributed to more than 20 publications in reference international journals and conferences;
• Contributed to 4 European and Portuguese research projects;
• Directed the master thesis work of 4 students;
• Responsible for the maintenance of the technological infrastructure during three years.

Intern   September 2012 - December 2012
Erasmus Medical Center, Rotterdam, The Netherlands

Developed a machine learning-based solution for the automatic recognition of gene-drug relations from scientific articles.

Teacher   February 2011 - February 2012
University of Aveiro, Aveiro, Portugal

❯ **Programming I**: Problem solving and data structures in Java.
❯ **Programming II**: Data structures and algorithms in Java.

Intern   September 2010 - December 2010
European Bioinformatics Institute, Cambridge, United Kingdom

Contributed to the CALBC European project by designing and implementing a machine learning-based solution to combine heterogeneous gene and protein annotations from four different solutions.

EDUCATION

Doctor of Philosophy (Ph.D.) in Computer Science   September 2009 - February 2014
Universities of Minho, Aveiro and Porto, Portugal

- ❯ **Subject(s)**: Mining biomedical information from scientific literature.
- ❯ **Supervisor(s)**: José Luís Oliveira and Sérgio Matos

Master of Science (M.Sc.) in Computer and Telematics Engineering   September 2006 - December 2008
University of Aveiro, Portugal

- ❯ **Subject(s)**: Java SE/EE, Web services, Distributed systems, Operating Systems, Distributed artificial intelligence, Computer architecture, Software engineering and architecture, and Pattern recognition.
- ❯ **Grade**: 15 out of 20

Bachelor of Science (B.Sc.) in Computer and Telematics Engineering   September 2003 - July 2006
University of Aveiro, Portugal

- ❯ **Subject(s)**: Object-oriented programming, Functional and logic programming, Stochastic methods, Formal languages and automata, System analysis, Databases, Network architecture, Artificial Intelligence, and Mobile applications.
- ❯ **Grade**: 13 out of 20

PRODUCTS AND TOOLS

❯ **PACScenter**   2016

⬇ **Description:** Complete web-based medical imaging platform for patient studies storage, visualization and sharing, enabling simple and efficient workflows.

🔗 **https://demo.bmd-software.com/pacscenter**

❯ **Neji**   2015

⬇ **Description:** Open source, flexible, easy and powerful framework and tool for faster biomedical concept recognition. It allows automatic extraction of dozens of heterogeneous biomedical concepts using the most appropriate and optimized techniques.

🔗 **https://github.com/BMDSoftware/neji**

❯ **Egas**   2014

⬇ **Description:** Web-based platform for biomedical text mining and collaborative curation, supporting manual and automatic annotation of concepts and relations.

🔗 **https://demo.bmd-software.com/egas**

❯ **BeCAS**   2013

⬇ **Description:** Web-based tool, web-service and widget for biomedical concept identification, supporting the annotation of MEDLINE abstracts and free text documents with eleven biomedical concept types.

🔗 **http://bioinformatics.ua.pt/becas**

❯ **TrigNER**   2013

⬇ **Description:** Open source solution for biomedical event trigger recognition, taking advantage of a completely configurable algorithm to automatically optimize the feature set and training parameters for each event type.

🔗 **http://bioinformatics.ua.pt/trigner**

❯ **Totum**   2011

⬇ **Description:** Machine learning-based solution to harmonize annotations of biomedical concepts provided by heterogeneous systems. It was optimized and evaluated against a combination of manually curated corpora.

🔗 **http://bioinformatics.ua.pt/totum**

❯ **Gimli**   2011

⬇ **Description:** Open source off-the-shelf and ready to use tool and library for complex named-entity recognition, providing trained and optimized models for recognition of biomedical entities from scientific texts.

🔗 **http://bioinformatics.ua.pt/gimli**

PROJECTS

HemoSpec 2013 - 2018

↓**Goal:** Develop a highly innovative technological platform for early, fast and reliable medical diagnosis of sepsis, using a minimal amount of patient's blood.

↓**Role:** Leader of the work package responsible for developing the decision model, the centralized knowledge-base and the infrastructure that enables communication between the several processing modules.

🔗 **http://www.hemospec.eu**

NeuroPath 2013 - 2015

↓**Goal:** Novel therapeutic strategies to tackle existing neuropathologies.

↓**Role:** Contributed with the development of automatic methods to infer innovative compound and protein relationships from scientific literature.

QuExT 2010 - 2013

↓**Goal:** Document retrieval with concept-oriented query expansion.

↓**Role:** Contributed with the design and implementation of automatic methods for biomedical information extraction from scientific texts, namely concepts and relations between concepts.

🔗 **http://bioinformatics.ua.pt/quext**

EU-ADR 2008 - 2012

↓**Goal:** Early detection of adverse drug reactions.

↓**Role:** Contributed by designing the integration platform to support the rapid detection of adverse drug reactions, and by designing and implementing a solution for web-services security.

🔗 **http://www.euadr-project.org**

CALBC 2009 - 2011

↓**Goal:** Collaborative annotation of a large biomedical corpus.

↓**Role:** Contributed with the design and implementation of a knowledge-based solution for automatic harmonization of heterogeneous concept annotations, using machine learning and available annotated corpora.

🔗 **http://www.calbc.eu**

PUBLICATIONS

Books

↓**David Campos.** Mining biomedical information from scientific literature. Ph.D. Thesis, Universidade de Aveiro, February 2014

↓**David Campos.** Distribuição de serviço docente: back e front office web. M.Sc. Thesis, Universidade de Aveiro, December 2008

Book chapters

↓**David Campos**, Sérgio Matos, José Luís Oliveira. Current methodologies for biomedical Named Entity Recognition. Biological Knowledge Discovery Handbook: Preprocessing, Mining and Postprocessing of Biological Data, Mourad Elloumi and Albert Y. Zomaya (Ed.), Wiley, p. 1390, January 2014

↓**David Campos**, Sérgio Matos, José Luís Oliveira. Biomedical Named Entity Recognition: A Survey of Machine-Learning Tools. Theory and Applications for Advanced Text Mining, Shigeaki Sakurai (Ed.), InTech, p. 175-195, November 2012

International journals

↓Sun Kim, Rezarta Islamaj Doğan, Andrew Chatr-Aryamontri, Christie S. Chang, Rose Oughtred, Jennifer Rust, Riza Batista-Navarro, Jacob Carter, Sophia Ananiadou, Sérgio Matos, André Santos, **David Campos**, José Luís Oliveira, Onkar Singh, Jitendra Jonnagaddala, Hong-Jie Dai, Emily Chia-Yu Su, Yung-Chun Chang, Yu-Chen Su, Chun-Han Chu, Chien Chin Chen, Wen-Lian Hsu, Yifan Peng, Cecilia Arighi, Cathy H. Wu, K. Vijay-Shanker, Ferhat Aydın, Zehra Melce Hüsünbeyi, Arzucan Özgür, Soo-Yong Shin, Dongseop Kwon, Kara Dolinski, Mike Tyers, W. John Wilbur, and Donald C. Comeau. BioCreative V BioC track overview: collaborative biocurator assistant task for BioGRID. Database, vol. 2016, no. baw121, September 2016 **(IF 2015: 2.627)**

↓Qinghua Wang, Shabbir S. Abdul, Lara Almeida, Sophia Ananiadou, Yalbi I. Balderas-Martínez, Riza Batista-Navarro, **David Campos**, Lucy Chilton, Hui-Jou Chou, Gabriela Contreras, Laurel Cooper, Hong-Jie Dai, Barbra Ferrell, Juliane Fluck, Socorro Gama-Castro, Nancy George, Georgios Gkoutos, Afroza K. Irin, Lars J. Jensen, Silvia Jimenez, Toni R. Jue, Ingrid Keseler, Sumit Madan, Sérgio Matos, Peter McQuilton, Marija Milacic, Matthew Mort, Jeyakumar Natarajan, Evangelos Pafilis, Emiliano Pereira, Shruti Rao, Fabio Rinaldi, Karen Rothfels, David Salgado, Raquel Silva, Onkar Singh, Raymund Stefancsik, Chu-Hsien Su, Suresh Subramani, Hamsa D. Tadepally, Loukia Tsaprouni, Nicole Vasilevsky, Xiaodong Wang, Andrew Chatr-Aryamontri, Stanley J. F. Laulederkind, Sherri Matis-Mitchell, Johanna McEntyre, Sandra Orchard, Sangya Pundir, Raul Rodriguez-Esteban, Kimberly Van Auken, Zhiyong Lu, Mary Schaeffer, Cathy H. Wu, Lynette Hirschman, and Cecilia N. Arighi. Overview of the interactive task in BioCreative V. Database, vol. 2016, p. baw119, September 2016 **(IF 2015: 2.627)**

↓Sérgio Matos, **David Campos**, Renato Pinho, Raquel Silva, Matthew Mort, David N. Cooper, José Luís Oliveira. Mining clinical attributes of genomic variants through assisted literature curation in Egas. Database, vol. 2016, June 2016 **(IF 2015: 2.627)**

⬇ **David Campos**, Sérgio Matos, José Luís Oliveira. A document processing pipeline for annotating chemical entities in scientific documents. Journal of Cheminformatics, vol. 7, no. Suppl. 1, p. S7, January 2015 **(IF 2015: 3.949)**

⬇ Martin Krallinger, Obdulia Rabal, Florian Leitner, Miguel Vazquez, David Salgado, Zhiyong Lu, Robert Leaman, Yanan Lu, Donghong Ji, Daniel M Lowe, Roger A Sayle, Riza Theresa Batista-Navarro, Rafal Rak, Torsten Huber, Tim Rocktäschel, Sérgio Matos, **David Campos**, Buzhou Tang, Hua Xu, Tsendsuren Munkhdalai, Keun Ho Ryu, SV Ramanan, Senthil Nathan, Slavko Žitnik, Marko Bajec, Lutz Weber, Matthias Irmer, Saber A Akhondi, Jan A Kors, Shuo Xu, Xin An, Utpal Kumar Sikdar, Asif Ekbal, Masaharu Yoshioka, Thaer M Dieb, Miji Choi, Karin Verspoor, Madian Khabsa, C Lee Giles, Hongfang Liu, Komandur Elayavilli Ravikumar, Andre Lamurias, Francisco M Couto, Hong-Jie Dai, Richard Tzong-Han Tsai, Caglar Ata, Tolga Can, Anabel Usié, Rui Alves, Isabel Segura-Bedmar, Paloma Martínez, Julen Oyarzabal, Alfonso Valencia. The CHEMDNER corpus of chemicals and drugs and its annotation principles. Journal of Cheminformatics, vol. 7, no. Suppl 1, p. S2, January 2015 **(IF 2015: 3.949)**

⬇ **David Campos**, Jóni Lourenço, Sérgio Matos, José Luís Oliveira. Egas: a collaborative and interactive document curation platform. Database, vol. 2014, no. 10.1093, p. 1-12, June 2014 **(IF 2014: 3.372)**

⬇ **David Campos**, Quoc-Chinh Bui, Sérgio Matos, José Luís Oliveira. TrigNER: automatically optimized biomedical event trigger recognition on scientific documents. Source Code for Biology and Medicine, vol. 9, no. 1, January 2014 **(IF 2014: 2.250)**

⬇ Pedro Lopes, Tiago Nunes, **David Campos**, Laura Ines Furlong, Anna Bauer-Mehren, Ferran Sanz, Maria Carmen Carrascosa, Jordi Mestres, Jan Kors, Bharat Singh, Erik van Mulligen, Johan Van der Lei, Gayo Diallo, Paul Avillach, Ernst Ahlberg, Scott Boyer, Carlos Diaz, José Luís Oliveira. Gathering and Exploring Scientific Knowledge in Pharmacovigilance. PLoS ONE, December 2013 **(IF 2012: 3.730)**

⬇ **David Campos**, Sérgio Matos, José Luís Oliveira. A modular framework for biomedical concept recognition. BMC Bioinformatics, vol. 14, no. 281, September 2013 **(IF 2012: 3.024)**

⬇ Tiago Nunes, **David Campos**, Sérgio Matos, José Luís Oliveira. BeCAS: biomedical concept recognition services and visualization. Bioinformatics, vol. 29, no. 15, p. 1915-1916, June 2013 **(IF 2012: 5.323)**

⬇ José Luís Oliveira, Pedro Lopes, Tiago Nunes, **David Campos**, E. Ahlberg, E. van Mullingen, J. Kors, B. Singh, L. I. Furlong, F. Sanz, A. Bauer-Mehren, M. D. C. Carrascosa, J. Mestres, P. Avillach, C. Díaz Acedo, J. van der Lei. The EU-ADR Web Platform: delivering advanced pharmacovigilance tools. Pharmacoepidemiology and Drug Safety, vol. 22, no. 5, p. 459-467, May 2013 **(IF 2012: 2.897)**

⬇ **David Campos**, Sérgio Matos, José Luís Oliveira. Gimli: open source and high-performance biomedical name recognition (Highly accessed). BMC Bioinformatics, vol. 14, no. 1, p. 54, February 2013 **(IF 2012: 3.024)**

⬇ **David Campos**, Sérgio Matos, Ian Lewin, José Luís Oliveira, Dietrich Rebholz-Schuhmann. Harmonisation of gene/protein annotations: towards a gold standard MEDLINE. Bioinformatics, vol. 28, no. 9, p. 1253-1261, March 2012 **(IF 2012: 5.323)**

⬇ Z. Lu, H.-Y. Kao, C.-H. Wei, M. Huang, J. Liu, C.-J. Kuo, C.-N. Hsu, R.T.-H. Tsai, H.-J. Dai, N. Okazaki, H.-C. Cho, M. Gerner, I. Solt, S. Agarwal, F. Liu, D. Vishnyakova, P. Ruch, M. Romacker, F. Rinaldi, S. Bhattacharya, P. Srinivasan, H. Liu, M. Torii, Sérgio Matos, **David Campos**, K. Verspoor, K.M. Livingston, W.J. Wilbur. The Gene Normalization Task in BioCreative III. BMC Bioinformatics, vol. 12, no. Suppl 8, p. S2, September 2011 **(IF 2012: 3.024)**

⦿ International conferences

⬇ André Santos, Sérgio Matos, **David Campos**, José Luís Oliveira. A Curation Pipeline and Web-Services for PDF Documents. Proceedings of the 7th International Symposium on Semantic Mining in Biomedicine, Potsdam, Germany, August 2016

⬇ Eriksson Monteiro, Carlos Costa, José Luís Oliveira, **David Campos**, Luís Bastião Silva. Caching and Prefetching Images in a Web-based DICOM Viewer. 29th International Symposium on Computer-Based Medical Systems (CBMS 2016), June 2016

⬇ Sérgio Matos, **David Campos**, Renato Pinho, Raquel Silva, Matthew Mort, David N. Cooper, José Luís Oliveira. Assisted Mining and Curation of Genomic Variants using Egas. Proceedings of the Fifth BioCreative Challenge Evaluation Workshop, Sevilla, Spain, p. 396-402, September 2015

⬇ Sérgio Matos, José Sequeira, **David Campos**, José Luís Oliveira. Identification of chemical and gene mentions in patent texts using feature-rich conditional random fields. Proceedings of the Fifth BioCreative Challenge Evaluation Workshop, Sevilla, Spain, p. 76-81, September 2015

⬇ Sérgio Matos, André Santos, **David Campos**, José Luís Oliveira. Neji: a BioC compatible framework for biomedical concept recognition. Proceedings of the Fifth BioCreative Challenge Evaluation Workshop, Sevilla, Spain, p. 17-21, September 2015

⬇ Pedro Sernadela, Pedro Lopes, **David Campos**, Sérgio Matos, José Luís Oliveira. A Semantic Layer for Unifying and Exploring Biomedical Document Curation Results. Bioinformatics and Biomedical Engineering, Proceeedings of the Third International Conference, IWBBIO, Part I, Granada, Spain, vol. Part I, p. 8-17, April 2015

⬇ **David Campos**, Sérgio Matos, José Luís Oliveira. Chemical name recognition with harmonized feature-rich conditional random fields. Fourth BioCreative Challenge Evaluation Workshop, vol. 2, p. 82-87, October 2013

⬇ **David Campos**, Jóni Lourenço, Tiago Nunes, Rui Vitorino, Pedro Domingues, Sérgio Matos, José Luís Oliveira. Egas - Collaborative Biomedical Annotation as a Service. Fourth BioCreative Challenge Evaluation Workshop, vol. 1, p. 254-259, October 2013

⬇ Quoc-Chinh Bui, **David Campos**, Erik van Mulligen, Jan Kors. A fast rule-based approach for biomedical event extraction. Proceedings of BioNLP Shared Task 2013 Workshop, Association for Computational Linguistics, Sofia, Bulgaria, August 2013

⬇ **David Campos**, Sérgio Matos, José Luís Oliveira. Neji: a tool for heterogeneous biomedical concept identification. Proceedings of the BioLINK SIG, ISMB/ECCB, Berlin, Germany, p. 28-31, July 2013

⬇ **David Campos**, D. Rebholz-Schuhman, Sérgio Matos, José Luís Oliveira. A CRF-based approach to harmonize heterogeneous gene/protein annotations. Proceedings of the Second CALBC workshop, p. 17-18, March 2011

⬇ **David Campos**, Sérgio Matos, José Luís Oliveira. Annotating the CALBC corpus with a machine learning harmonization approach. Proceedings of the Second CALBC workshop, p. 43-45, March 2011

⬇ Pedro Lopes, **David Campos**, José Luís Oliveira. A tagging system for bioinformatics resources. 10th IEEE International Conference on Information Technology and Applications in Biomedicine (ITAB 2010), Corfu, Greece, November 2010

⬇ **David Campos**, Sérgio Matos, José Luís Oliveira. Recognition of Gene/Protein names using Conditional Random Fields. Proceedings of the International Conference on Knowledge Discovery and Information Retrieval 2010 (KDIR2010), Valencia, Spain, October 2010

⬇ Sérgio Matos, **David Campos**, José Luís Oliveira. Vector-space models and terminologies in gene normalization and document classification. Proceedings of BioCreative III Workshop, Bethesda, Maryland, USA, p. 119-124, September 2010

⬇ Pedro Lopes, David Pinto, **David Campos**, José Luís Oliveira. Arabella: A Directed Web Crawler. International Conference on Knowledge Discovery and Information Retrieval (KDIR 2009), Madeira, Portugal, 2009

AWARDS

❷ Best poster

⬇ **David Campos**, Sérgio Matos, José Luís Oliveira. Neji: a tool for heterogeneous biomedical concept identification. BioLINK SIG, ISMB/ECCB, Berlin, Germany, July 2013.

❷ Best student paper

⬇ **David Campos**, Sérgio Matos, José Luís Oliveira. A machine learning-based tool for biomedical entity recognition. III Xornadas Galegas de Bioinformática, Vigo, Spain, September, 2011.

TALKS

⬇ **PACScenter: a complete platform for collaborative medical imaging.** Workshop "Aplicações da Análise de Imagem e a Visão por Computador", Guimarães, Portugal, September 2016

⬇ **PACScenter: cloud-ready medical imaging platform.** Startup Clinic, Aveiro, Portugal, May 2016

⬇ **Assisted mining and curation of genomic variants using Egas.** Fifth BioCreative Challenge Evaluation Workshop, Sevilla, Spain, September 2015

⬇ **Chemical name recognition with harmonized feature-rich conditional random fields**. Fourth BioCreative Challenge Evaluation Workshop, Bethesda, Maryland, USA, October 2013

⬇ **Neji: a tool for heterogeneous biomedical concept identification**. BioLINK SIG, ISMB/ECCB, Berlin, Germany, July 2013

⬇ **Biomedical concept recognition**, Kolloquium in Computerlinguistik, Zurich, Switzerland, May 2013

⬇ **A modular architecture for biomedical concept identification**, Bioinformatics Open Days, Braga, Portugal, March 2013

⬇ **A CRF-based approach to harmonize heterogeneous gene/protein annotations**. Second CALBC workshop, Cambridge, United Kingdom, March 2011

⬇ **Annotating the CALBC corpus with a machine learning harmonization approach**. Second CALBC workshop, Cambridge, United Kingdom, March 2011

⬇ **A machine learning-based tool for biomedical entity recognition**. III Xornadas Galegas de Bioinformática, Vigo, Spain, September, 2011.

⬇ **Recognition of Gene/Protein names using Conditional Random Fields**. International Conference on Knowledge Discovery and Information Retrieval 2010 (KDIR2010), Valencia, Spain, October 2010

SCIENTIFIC EVENTS

⬇ **Web Summit,** Lisbon, Portugal, November 2016

⬇ **XI Encontro Nacional de Estudantes de Informática,** Aveiro, Portugal, November 2016

⬇ **Feira do empreendedor,** Porto, Portugal, October, 2016

⬇ **Workshop "Aplicações da Análise de Imagem e a Visão por Computador"**, Guimarães, Portugal, September 2016

⬇ **TechDays,** Aveiro, Portugal, September 2016

⬇ **XIII Congresso Nacional de Radiologia,** Albufeira, Algarve, May 2016

⬇ **Fifth BioCreative Challenge Evaluation Workshop,** Sevilla, Spain, September 2015

⬇ **Commit Porto,** Porto, Portugal, June 2015

⬇ **Fourth BioCreative Challenge Evaluation Workshop,** Bethesda, Maryland, USA, October 2013

⬇ **International Conference on Intelligent Systems for Molecular Biology/European Conference on Computational Biology (ISMB/ECCB),** Berlin, Germany, July 2013

⬇ **Linking Literature, Information and Knowledge for Biology (BioLINK),** Berlin, Germany, July 2013

⬇ **Research Day,** Aveiro, Portugal, June 2013

⬇ **Bioinformatics Open Days,** Braga, Portugal, March 2013

⬇ **III Xornadas Galegas de Bioinformática,** Vigo, Spain, September 2011.

⬇ **Second CALBC workshop,** Cambridge, United Kingdom, March 2011

⬇ **International Conference on Knowledge Discovery and Information Retrieval (KDIR),** Valencia, Spain, October 2010

⬇ **First CALBC workshop**, Cambridge, United Kingdom, June 2010

SKILLS

General

- **Languages:** Java, C#, C, C++, PHP, ActionScript and Scala.
- **Web:** HTML, CSS and JavaScript.
- **Services:** SOAP and REST (with security).
- **Databases:** MySQL, SQL Server and PostgreSQL.
- **Source Code Management:** Git, GitFlow and SVN.
- **CI/CD**: Jenkins Pipelines.
- **OSes:** Mac OS, Linux (Ubuntu and Arch) and Windows.

Server-side

- **Environments:** Java, Node.js, PHP and .Net
- **Servers:** Nginx, Apache, Jetty, Netty, Tomcat and IIS
- **Frameworks:** Play Framework, Google Web Toolkit (GWT) and Symphony
- **Build management:** Maven, Ant and SBT
- **Memory databases:** Memcached and Redis
- **Indexing**: Lucene
- **Database persistence:** JPA (Hibernate and TopLink)
- **Performance optimization, debugging and security**

Client-side

- **Workflow and package management:** SBT, NPM, Grunt and Bower
- **Desktop:** NW.js and Electron
- **Libraries:** jQuery, Bootstrap, Async.js, Hammer.js, Underscore.js, Kinetic.js, Typeahead.js, jsPDF, DataTables, Handlebars, among others.
- **Performance optimization, debugging and security**

Virtualization and Containerization

- **Virtualization:** VMWare, Amazon Web Services (AWS) EC2 and Open Stack
- **Containerization:** Docker and Docker Swarm

Team leading

- **Task and risk management**
- **Collaborators coaching and carreer development**
- **Methodologies:** Agile Kanban and Scrum
- **Tools:** Phabricator, GitHub and JIRA

Concepts

- **Machine learning:** Conditional Random Fields (CRFs), Support Vector Machines (SVMs), Hidden Markov Models (HMMs), Maximum Entropy Markov Models (MEMMs), Naïve Bayes (NBs), Neural Networks (NNs), Logistic Regression, among others.
- **Text mining:** information extraction (named entity recognition, normalization, disambiguation and relation mining) and retrieval.
- **Semantic web:** resources integration, ontologies and semantic search.
- **Medical imaging:** DICOM, image processing and visualization, and medical interaction workflows
- **Biomedical:** domain knowledge and resources (databases and ontologies).

Software engineering

- Requirements analysis, system modeling, project planning and management.

Design

- Good design skills in print, screen and web with basic know-how in Illustrator, InDesign and Photoshop.

Languages

- **Portuguese** (native), **English** (proficient) and **Spanish** (independent).

Miscellaneous

- **Driver's license:** Category B (Portugal).