

Curriculum Vitae

Eliezer de Souza da Silva

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Bitbucket: <https://bitbucket.org/djosacv>

GitHub: <https://github.com/zehsilva>

EDUCATION:

PhD (ongoing), Computer and Information Science

Norwegian University of Science and Technology (NTNU), Norway. 2015-2019

× Concentration Area: Machine Learning

× Title: *"Probabilistic models for recommender systems: scalable inference and novel designs"*

× Research Area: Statistical Inference, Probabilistic Graphical Models, Personalization, Recommender Systems

× Advisors: Helge Langseth (NTNU) and Heri Ramampiaro (NTNU)

M.Sc., Electrical Engineering (GPA: 3.55/4.0)

State University of Campinas (Unicamp), Brazil. 2012-2014 (August)

× Concentration Area: Computer Engineering

× Title: *"Metric space indexing for nearest neighbor search in multimedia context"*

× Research Area: High Dimensional Metric and Vector Space Indexing (for Multimedia applications)

× Advisor: Dr. Eduardo Valle

× Code: <https://bitbucket.org/djosacv/voronoilsh/>

B.Sc., Computer Engineering (GPA: 8.13/10.0)

Universidade Federal do Espírito Santo (UFES), Brazil. 2006-2011 (July)

× Final Project: *"Content Retrieval using LSI (Latent Semantic Analysis) and VSM (Vector Space Model) Techniques"*.

× Research Area: Information Retrieval / Applied Linear Algebra

× Advisor: Dr. Rodolfo da Silva Villaça

Technical School, Electronics (GPA: 18/20)

Escola Técnica Grão-Duque Henri, Cape Verde (2005)

PROFESSIONAL EXPERIENCES:

Analyst in System Development (Civil Public Servant),

Brazilian Institute of Geography and Statistics (Instituto Brasileiro de Geografia e Estatística - IBGE), Jun/2014-Aug/2015

× The work consist of developing complete information systems solution for the operation of national census, population counting, agronomic census and other major census operations. The solutions range from desktop/web/mobile application, communication services and data transmission protocols, besides the architecture of the information systems.

Consulting/Image processing Specialist,

Anchor Loans, USA, December 2013.

× I am working as a part time consultant for a image processing project. The work consists of doing literature review, analyzing results and suggesting approaches to the team of developers. The project uses image processing, machine learning and computer vision techniques (SIFT, GIST, etc) to improve some of the company technological tools.

Software Engineer,

Eldorado Research Institute, Campinas-SP, Brazil, September 2011 to January 2012.

× Motorola Android Project

× Integration of Android platform and application into new Motorola products (Smartphones and tablets).

× C/C++ and Java

Analyst-Developer (Java),

Mogai – Soluções Confiáveis, Vitória, Brazil, February 2011 to August 2011.

× Development of web application for a governmental agency (CGU – Controladoria Geral da União).
Technologies applied: JBoss Seam Framework, JBoss AS, Hibernate 3.0, EJB 3.0, JPA, JSF and RichFaces.

Teacher,

Escola Técnica Master (Technical School), São Mateus, Brazil, March 2010 to December 2010.

× Analog and Digital Electronics Classes.

PHP Programmer,

Móveis Simonetti, Pinheiros (ES), Brazil, December 2009 to February 2010.

**ACADEMIC
EXPERIENCE:****Teaching Assistant (assignment coordinator)**

× TDT4171 Artificial Intelligence Methods (NTNU), Spring 2016 and Spring 2017

× TDT4136 Introduction to Artificial Intelligence (NTNU), Autumn 2017

Graduate Research (PhD):

“Probabilistic models for recommender systems: scalable inference and novel designs”. 2015-2019. (IDI PhD Fellowship)

× Advisor: Helge Langseth and Heri Ramampiaro

× Field: Machine Learning / Statistical Inference / Recommender Systems.

× This research project aims to investigate the interplay between large scale data mining and probabilistic modeling in the design of better personalization methods, models and algorithms, with a special emphasis in recommender systems and collaborative filtering. We intend to explore different modelling choices and approximate inference for large scale personalization.

Graduate Research (M.Sc.):

“Metric space indexing for nearest neighbor search in multimedia context”. 2012-2014. (CAPES Grant)

× Advisor: Eduardo Valle

× Field: Multimedia Retrieval / Machine Learning.

× Our goal is to establish some theoretical and experimental compromises on performance (efficiency-effectiveness) using high-dimensional indexing methods based on Locality-Sensitive Hashing. I've been working on new extensions of these indexing methods to Metric Spaces. This research is combination of experimental verification of our methods in real world datasets and theoretical characterization of the behaviour of the proposed methods.

Director of Events at APOGEEU (Graduate Student Association at FEEC-Unicamp), 2012-2014

<http://www.apogeeu.fee.unicamp.br/>

× Activities: organization of several workshops (teaching assistant workshops), meetings with administrator of the school and university, participating in evaluation of supervisors, writing reports and research papers based on some initiatives of the association.

Final Project Research (B.Sc.): *“Content Retrieval using LSI (Latent Semantic Analysis) and VSM (Vector Space Model) Techniques”*. 2011

× Advisor: Rodolfo da Silva Villaça

× Field: Information Retrieval / Applied Linear Algebra

× Prototype Information Retrieval system written in Python and C++ applying LSI methods. System evaluation using metrics as R-Precision, MAP and interpolated 11-points Precision-Recall graph.

Undergraduate Research Assistant: *Classical Mechanics Simulations using Functional Programming Language*, 2008-2009. (Research Grant from CNPQ - National Council for Scientific and Technological Development)

× Advisors: Ayrton Monteiro Cristo and Valberto Pedruzzi Nascimento

× Field: Classical Mechanics and Computer Simulations.

× Writing down analytical solutions to some Classical Mechanics problems; Running simulations using Scheme programming language and comparing results.

Teaching Assistant for Data Structures and Programming Classes (Universidade Federal do Espírito

Santo), 2010. (TA Scholarship)

Teaching Assistant for Classical Mechanics Classes (Universidade Federal do Espírito Santo), 2007. (TA Scholarship)

TECHNICAL
SKILLS:

- × Java, C, C++, Python, PHP, Scheme and Shell Script.
- × MySQL, SQL Server and PostgreSQL.
- × JBoss Seam and Java Web Technologies (JPA, Hibernate, JSF, JSP, RichFaces, etc).
- × HTML, JavaScript and CSS.
- × Linux and Windows Platforms.
- × Machine Learning, Statistical Modelling, Content-based Multimedia Retrieval, Metric Space Indexing, Nearest-Neighbor Searching, Locality-Sensitive Hashing.
- × Eclipse, NetBeans and Code::Blocks IDE.

GRANTS:

- × CNPQ (Brazilian Research Council) undergraduate research scholarship (2008-2009).
- × CAPES M.Sc. research scholarship (2012-2014).
- × NTNU (Department of Computer Science) Research Fellowship (2015-2019)
- × Lisbon Machine Learning School (LxMLS 2016) travel and accommodation scholarship provided by Feedzai.
- × SIGIR Travel Grant (WSDM 2017).

SOME OLD PROJECTS:

ZEL Language and ZehCompiler, 2010.

× Simple programming language design and a compiler (targeted to JVM bytecodes) written in Java.

× <http://www.assembla.com/spaces/zehcompiler/wiki>

RaytracerTT, 2011.

× Renderer of 3D images using raytracing technique. Some feature included are Phong Shader and Depth-Of-Field effect.

× <http://code.google.com/p/zehraytracer/>

EspiaCamara, 2011. (with Alan Godoy and Saullo Oliveira)

× A project developed during the Brazillian Chamber of Deputies OpenData Hackathon. We gathered public data of deputies and made semantic textual analysis (automatic topic detection) and co-clustering of the voting pattern in order the find block votings.

× <http://www.espiacamara.com.br/>

× Code: <https://bitbucket.org/djosacv/camara-mining>

LANGUAGES:

Portuguese, English, French, Cape-Verdean Creole and Spanish.

REFERENCES:

Eduardo Valle (dovalle@dca.fee.unicamp.br). School of Electrical and Computer Engineering, University of Campinas (<http://eduardovalle.com/>)

Romis Attux (attux@dca.fee.unicamp.br). School of Electrical and Computer Engineering, University of Campinas (<http://www.dca.fee.unicamp.br/~attux/>)

Helge Langseth (helgel@idi.ntnu.no). Department of Computer and Information Science, Norwegian University of Science and Technology (<http://www.idi.ntnu.no/~helgel/>).

Heri Ramampiaro (heri@ntnu.no). Department of Computer and Information Science, Norwegian University of Science and Technology (<http://www.idi.ntnu.no/~heri/>).

PROCEEDINGS PUBLICATIONS:

GODOY, A; SILVA, E. S.; FIGUEIREDO, R.C. *Efeitos do Estágio Docente na Formação do Pós-Graduando*. In: WEI XXI Workshop of Education in Computation – Congresso da Sociedade Brasileira de Computação, 2013, Maceió – Alagoas – Brazil. (An empirical study conducted by the graduate student organization assessing the impact of teaching assistantship during graduate school)

SILVA, E. S; VALLE, E. *K-medoids LSH: a new locality sensitive hashing in general metric space*. In: SBBD 2013 - SBBD 2013 – Brazilian Symposium on Database, 2013, Recife – Pernambuco – Brazil. (Here we proposed a locality-sensitive hashing that is able to work in generic metric space and provide empirical evidence of the method performance in approximate nearest-neighbor search. Theoretical properties of the method are later demonstrated in the M.Sc. dissertation)

SILVA, E. S; TEIXEIRA, T.S.F.X; TEODORO, G; VALLE, E. *Large-Scale Distributed Locality-Sensitive Hashing for General Metric Data*. In: SISAP 2014 – 7th International Conference on Similarity Search and Applications, 2014, Los Cabos – Mexico.

(The final publication is available at http://link.springer.com/chapter/10.1007/978-3-319-11988-5_8)

SILVA, E. S. *New Probabilistic Models for Recommender Systems with Rich Contextual and Content Information*. Tenth ACM International Conference on Search and Data Mining - Doctoral Consortium (WSDM-DC 2017). February 06-10, 2017. Cambridge, United Kingdom.

INVITED TALKS & VISITS:

CPqD (private research and innovation company). Invited by Alan Godoy Souza Mello.
Gave a talk on “*Similarity search in metric space*”. September 1st, 2014.
Campinas (SP) - Brazil

IT University of Copenhagen, Scalable Similarity Search Project. Invited by Rasmus Pagh.
Gave a talk on “*LSH for similarity search in generic metric space*”. October 6th to 10th, 2014.
Copenhagen - Denmark

National School of Statistical Sciences (ENCE), Brazilian Institute of Geography and Statistics (IBGE).
Gave a talk on “*LSH for nearest-neighbor search in generic metric space*”, December 8th, 2014.
Rio de Janeiro - Brazil

TECHNICAL REPORTS:

SILVA, E. S. ; CRISTO FILHO, A. M. *Análise e Simulações em Mecânica Analítica usando Linguagem Funcional*. Federal University of Espirito Santo. 2008. (Technical report of our undergraduate research project involving the simulation of classical mechanics system using functional languages and exact solution using Lagrangian formulation and variational calculus. The non-linear pendulum is studied in this report)

SILVA, E. S. ; NASCIMENTO, V. P. *Aplicação da Linguagem Scheme aos Problemas da Mecânica Analítica*. Federal University of Espirito Santo. 2009. (The report is the continuation of previous research. In this case we solve algebraically the spinning top using Lagrangian formulation, Euler Angles and Elliptic Weierstrass equations, comparing the analytic solution with simulation using functional languages)

OTHER

ACTIVITIES:

(Past) Aliança Bíblica Universitária do Brasil (Intervarsity Christian Fellowship)
Regional Coordinator.

(2004) Center for Creative Youth – Wesleyan University (Summer Program)
Middletown – CT (USA)