Sebastián Ferrada

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Education and Academic Degrees

2021 **Ph.D. in Computer Science**, *Universidad de Chile*, Santiago, Chile.
Thesis: Similarity-based Web Queries.
Supervisors: Aidan Hogan and Benjamin Bustos.

2017 **M.Sc. in Computer Science**, *Universidad de Chile*, Santiago, Chile.
Thesis: IMGPEDIA: a Large-scale Knowledge-base to Perform Visuo-semantic Queries over Wikimedia Commons Images.

2017 **Civil Engineer in Computing**, *Universidad de Chile*, Santiago, Chile.

2015 **B.Sc. in Engineering Sciences, major in Computer Science**, *Universidad de Chile*, Santiago, Chile.

Academic Positions

Present **Postdoctoral Researcher**, *Department of Computer Science. Universidad de Chile*, Santiago, Chile.

Present **Research Assistant**, *Developing the Foundations and Applications of Path Manipulation Operations*, Regular Research Project Nr. 1221727, Fondecyt, Chile.
Principal Investigator: Renzo Angles

2021–2023 **Postdoctoral Researcher**, *Department of Computer and Information Science (IDA). Linköping University*, Linköping, Sweden.
Conducting research on graph database interoperability. Mentored by Olaf Hartig.

2017–Now **Lecturer**, *Universidad de Chile*, Santiago, Chile.
For undergraduate courses, and courses of the Masters in Information Technologies Program: Relational Databases, Information Retrieval and Introduction to Programming.

2015–2016 **Research Assistant**, *Centre for Semantic Web Research*, Santiago, Chile.
Funding for research on my masters thesis

2013-2018 **Teaching Assistant**, *Universidad de Chile*, Santiago, Chile.
Various Courses: Databases; Algorithms; Programming Methodologies; Multimedia Retrieval.

Professional Experience

2020–2021 **Software Engineer**, *REDPIE*, Santiago, Chile.
Full-stack engineer for `utopie.cl`

2014 **Software Developer Intern**, *NIC Chile Research Labs*, Santiago, Chile.

2013 **Part-Time Software Developer**, *Rubén Boroschek & Associates*, Santiago, Chile.

2012 **Part-Time Software Developer**, *Imagicair S.A.*, Santiago, Chile.

Honours and Awards

2023 **Best Paper Award**, for *Considering Vocabulary Mappings in Query Plans for Federations of RDF Data Sources*, at the 29th International Conference on Cooperative Information Systems.

2018 **First Prize**, at the 25th Latin American Contest of Master Thesis, organised by the Latin American Center for Computing Studies.

2018 **Best Graduate**, Distinction awarded by the Chilean Association of Engineers to top recently graduated engineers from Chilean universities.

2017 **Best Student Paper Award**, Resources track, for *IMGpedia: a Linked dataset with Content-based analysis of Wikimedia Images*, at the 16th International Semantic Web Conference.

2017 **Best Poster Award**, for *Answering Visuo-semantic Queries with IMGpedia*, at the 16th International Semantic Web Conference.

2017 **CONICYT**, Obtained the national doctorate scholarship from CONICYT (Chilean government) for Ph.D. funding.

2015 **Outstanding Student**, Awarded by the Faculty of Physical and Mathematical Sciences, Universidad de Chile, for having an excellent performance as an undergraduate student.

Publications

Sijin Cheng, Sebastián Ferrada, and Olaf Hartig. Considering vocabulary mappings in query plans for federations of RDF data sources. In *International Conference on Cooperative Information Systems*, 2023.

Sebastián Ferrada, Benjamin Bustos, and Aidan Hogan. Similarity joins and clustering for SPARQL. *Semantic Web Journal*, under submission.

Shahrzad Khayatbashi, Sebastián Ferrada, and Olaf Hartig. Converting Property Graphs to RDF: A preliminary study of the practical impact of different mappings. In *Joint Workshop on Graph Data Management Experiences & Systems (GRADES) and Network Data Analytics (NDA) (GRADES-NDA'22)*, 2022.

Sebastián Ferrada, Benjamin Bustos, and Aidan Hogan. Extending SPARQL with similarity joins. In *The Semantic Web – ISWC 2020*. Springer, 2020.

Sebastián Ferrada, Benjamin Bustos, and Nora Reyes. An efficient algorithm for approximated self-similarity joins in metric spaces. *Information Systems*, 2020.

Sebastián Ferrada, Benjamin Bustos, and Nora Reyes. A simple, efficient, parallelizable algorithm for approximated nearest neighbors. In *Proc. 12 Alberto Mendelzon International Workshop on Foundations of Data Management (AMW)*, 2018.

Sebastián Ferrada, Nicolás Bravo, Benjamin Bustos, and Aidan Hogan. Querying wikimedia images using wikidata facts. In *Companion Proceedings of the The Web Conference 2018*, 2018.

Sebastián Ferrada, Benjamin Bustos, and Aidan Hogan. IMGpedia: a linked dataset with content-based analysis of wikimedia images. In *The Semantic Web–ISWC 2017*, pages 84–93. Springer, 2017.

Sebastián Ferrada, Benjamin Bustos, and Aidan Hogan. Answering visuo-semantic queries with IMGpedia. CEUR-WS, 2017.

Sebastián Ferrada, Benjamin Bustos, and Aidan Hogan. IMGpedia: Enriching the Web of Data with Image Content Analysis. In *Proc. 10 Alberto Mendelzon International Workshop on Foundations of Data Management (AMW)*, 2016.

Community Service

Journal Reviewing

Since 2023 **Transactions on Graph Data and Knowledge (TGDK)**,
Editorial Board Member.

2023 **Semantic Web Journal (SWJ)**,
Reviewer for the Special Issue on Tools & Systems.

Programme Committees

2022–2024 **The Web Conference**,
Programme Committee Member, Semantics and Knowledge Track.

2021–2023 **International Semantic Web Conference (ISWC)**,
Programme Committee Member, Research Track.

2023 **Extended Semantic Web Conference (ESWC)**,
Programme Committee Member, Research Track.

2021–2023 **Extended Semantic Web Conference (ESWC)**,
Programme Committee Member, Poster and Demo Track.

2023 **International Workshop on Data Management for Knowledge Graphs (DMKG)**,
Programme Committee Member, co-located with ESWC 2023.

2021 **Wikidata Workshop**,
Programme Committee Member, co-located with ISWC 2021.

2020 **European Conference in Artificial Intelligence (ECAI)**,
Programme Committee Member.

Event Organization

2023 **15th Alberto Mendelzon International Workshop on Foundations of Data Management (AMW)**, *Santiago*, Chile,
Local Organization Chair.

Tutorials

2023 **Summer Institute of Computational Social Science (SICCS-Chile)**,
Presenting: "An Introduction to Knowledge Graphs", June 2023, Santiago, Chile.

Student Supervision

Graduate Students

- **Valentina Esteban**,
  Thesis: "Use of GNNs to predict BGP network resilience metrics".
  M.Sc. in Computer Science, Universidad de Chile. Ongoing. Role: Supervisor, co-supervised with Ivana Bachmann

- **Ignacio Burgos**,
  Thesis: "Custom Mappings from Relational Databases to Labelled Property Graphs".
  M.Sc. in Computer Science, Universidad de Chile. Ongoing. Role: Supervisor

- **Juliette Winneroth**,
  Thesis: "Using Vocabulary Mappings for Federated RDF Query Processing".
  M.Sc. in Computer Science, Linköping University. Graduated June 2023. Role: Supervisor

- **Wiktor Karlsson**,
  Thesis: "Integrating GraphQL APIs into an RDF Federation".
  M.Sc. in Computer Science, Linköping University. Graduated in February 2023. Role: Supervisor

Undergraduate Students

- **Matías López**,
  Thesis: "Aplicación Web para Diseñar Bases de Datos".
  B.Sc. in Computer Science, Universidad de Chile. Ongoing. Role: Supervisor, co-supervised with Aidan Hogan

- **Milton Chowdary**,
  Thesis: "Automated visualization of product deployment in a cloud enviroment".
  B.Sc. in Computer Science, Linköping University. Graduated in April 2022. Roles: Examiner, de-facto Supervisor

Teaching

- **Algorithms and Data Structures**, *Universidad de Chile*, Spring 2023.
  Course level: undergraduate
  Role: Lecturer (profesor de cátedra)

- **Databases**, *Universidad de Chile*, Spring 2019, Autumn 2023.
  Course level: undergraduate
  Role: Lecturer (profesor de cátedra)

- **Information Retrieval**, *Universidad de Chile*, Autumn 2020, 2021, 2022, and 2023.
  Course level: diploma
  Role: Lecturer (profesor de cátedra)

- **Database Management with Python**, *Universidad de Chile*, Autumn 2022 and 2023.
  Course level: extension diploma
  Role: Lecturer (profesor de cátedra)

- **Data Project**, *Universidad de Chile*, Autumn 2022 and 2023.
  Course level: extension diploma
  Role: Co-lecturer

- **Semantic Web**, *Linköping University*, Spring 2023.
  Course level: PhD
  Role: Co-lecturer
- **Database Technology**, *Linköping University*, Autumn 2021 and 2022.
  Course level: undergraduate
  Role: Lab Assistant
- **Big Data Analytics**, *Linköping University*, Spring 2022.
  Course level: masters
  Role: Lab Assistant
- **Advanced Data Models and Databases**, *Linköping University*, Autumn 2021.
  Course level: masters
  Role: Co-lecturer
- **Databases**, *Universidad de Chile*, Autumn 2014, Autumn and Spring 2016, Autumn and Spring 2017, Autumn and Spring 2018.
  Course level: undergraduate
  Role: Teaching assistant (ayudante y profesor auxiliar)
- **Relational Databases**, *Universidad de Chile*, Spring 2017 and Autumn 2018.
  Course level: diploma
  Role: Lecturer (profesor de cátedra)
- **Design and Programming Methodologies**, *Universidad de Chile*, Autumn and Spring 2014, Autumn and Spring 2015, Autumn 2017.
  Course level: undergraduate
  Role: Teaching assistant (ayudante y profesor auxiliar)
- **Algorithm Design and Analysis**, *Universidad de Chile*, Spring 2014, 2015, and 2016.
  Course level: undergraduate and graduate
  Role: Teaching assistant (ayudante)
- **Algorithms and Data Structures**, *Universidad de Chile*, Spring 2014, Autumn 2016.
  Course level: undergraduate
  Role: Teaching assistant (profesor auxiliar)
- **Content-based Image and Video Search**, *Universidad de Chile*, Autumn 2016.
  Course level: undergraduate and masters
  Role: Teaching assistant (ayudante)
- **Introduction to Programming**, *Universidad de Chile*, Spring 2015.
  Course level: undergraduate
  Role: Teaching assistant (profesor auxiliar)
- **Discrete Mathematics**, *Universidad de Chile*, Autumn 2015.
  Course level: undergraduate
  Role: Teaching assistant (ayudante)