Sebastián Ferrada

✉ sebastian.ferrada@uchile.cl
🖥 http://sferrada.com

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.
Supervisors: Aidan Hogan and Benjamin Bustos.

2017   **Computer Science Engineering**, *Universidad de Chile*, Santiago, Chile.

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

Academic Positions

2024–Now   **Assistant Professor**, *Data & Artificial Intelligence Initiative. Universidad de Chile*, Santiago, Chile.

2024–Now   **Collaborating Researcher**, *Millennium Institute for Foundational Research on Data*, Santiago, Chile.

2023–2024   **Postdoctoral Researcher**, *Department of Computer Science. Universidad de Chile*, Santiago, Chile.

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   **Expert 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.

Research Projects

2023–Now   **Developing the Foundations and Applications of Path Manipulation Operations**, *FONDECYT Regular Research Project Nr. 1221727*, Role: Research Assistant.
Principal Investigator: Renzo Angles.

2021–2023   **Interoperability and Integration of Graph Database Models**, *Swedish Research Council (Vetenskapsrådet) Project Nr. 2019-056*, Role: Postdoctoral Researcher.
Principal Investigator: Olaf Hartig.

2017 **Adoption-driven Specification of Semantic Web Language Profiles**, *FONDECYT Initiation Project Nr. 11140900*, Role: PhD Student.
Principal Investigator: Aidan Hogan.

2015–2016 **IMGpedia: a Large-Scale Knowledge-base to Perform Visuo-semantic Queries**, *Millennium Nucleus – Centre for Semantic Web Research*, Role: MSc. Student.

Publications

Journal Papers

[1] **Similarity Joins and Clustering for SPARQL**, *Sebastián Ferrada, Aidan Hogan and Benjamin Bustos*, Semantic Web Journal, 2024.

[2] **An Efficient Algorithm for Approximated Self-similarity Joins in Metric Spaces**, *Sebastián Ferrada, Benjamin Bustos and Nora Reyes*, Information Systems, 2020.

Conference Papers

[3] **Considering Vocabulary Mappings in Query Plans for Federations of RDF Data Sources**, *Sijin Cheng, Sebastián Ferrada, and Olaf Hartig*, International Conference on Cooperative Information Systems, Groningen, The Netherlands, Oct. 30–Nov. 3, 2023.

[4] **Extending SPARQL with Similarity Joins**, *Sebastián Ferrada, Aidan Hogan and Benjamin Bustos*, International Semantic Web Conference, Athens, Greece, [Online], Nov. 2—6, 2020.

[5] **IMGpedia: a linked dataset with content-based analysis of Wikimedia images**, *Sebastián Ferrada, Aidan Hogan and Benjamin Bustos*, International Semantic Web Conference, Vienna, Austria, Oct. 21—25, 2017.

Workshop Papers

[6] **ERDoc: A Web Interface for Entity–Relation Modelling**, *Matías López, Sebastián Ferrada and Aidan Hogan*, 3rd International Workshop on Data Systems Education, Santiago, Chile, June 9, 2024.

[7] **TelarKG: a Knowledge Graph of Chile's Constitutional Process**, *Renzo Angles, Vicente Calisto, Javiera Díaz, Sebastián Ferrada, Aidan Hogan, Alexander Pinto, Juan Reutter, Carlos Rojas, Henry Rosales-Méndez, Hernan Sarmiento, Etienne Toussaint, and Domagoj Vrgoč*, 7th Joint Workshop on Graph Data Management Experiences & Systems (GRADES) and Network Data Analytics (NDA), Santiago, Chile, June 14, 2024.

[8] **Converting Property Graphs to RDF: A Preliminary Study of the Practical Impact of Different Mappings**, *Shahrzad Khayatbashi, Sebastián Ferrada, and Olaf Hartig*, 5th Joint Workshop on Graph Data Management Experiences & Systems (GRADES) and Network Data Analytics (NDA), Philadelphia, PA, USA, June 12, 2022.

[9] **A Simple, Efficient, Parallelizable Algorithm for Approximated Nearest Neighbors**, *Sebastián Ferrada, Benjamin Bustos and Nora Reyes*, Proc. 12 Alberto Mendelzon International Workshop on Foundations of Data Management (AMW), Cali, Colombia, May 21–25, 2018.

[10] **Querying Wikimedia Images using Wikidata Facts**, *Sebastián Ferrada, Nicolás Bravo, Aidan Hogan and Benjamin Bustos*, Companion Proceedings of the The Web Conference 2018, Lyon, France, Apr. 25, 2018.

[11] **IMGpedia: Enriching the Web of Data with Image Content Analysis**, *Sebastián Ferrada, Aidan Hogan and Benjamin Bustos*, Proc. 10 Alberto Mendelzon International Workshop on Foundations of Data Management (AMW), Panama City, Panama, June 6–10, 2016.

Poster & Demo Papers

[12] **MillenniumDB: A multi-modal, multi-model graph database engine**, *Domagoj Vrgoč, Carlos Rojas, Renzo Angles, Marcelo Arenas, Vicente Calisto, Benjamín Farías, Sebastián Ferrada, Tristan Heuer, Aidan Hogan, Gonzalo Navarro, Alexander Pinto, Juan Reutter, Henry Rosales and Etienne Toussaint*, Companion of the 2024 International Conference on Management of Data, Santiago, Chile, June 11, 2024.

[13] **Answering visuo-semantic queries with IMGpedia**, *Sebastián Ferrada, Aidan Hogan and Benjamin Bustos*, International Semantic Web Conference, Posters and Demos, Vienna, Austria, Oct. 23, 2017.

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.

Community Service

Scientific Journal Duties

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.

Conference Programme Committees

2021–2024 **International Semantic Web Conference (ISWC)**,
Programme Committee Member, Research Track.

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

2023–2024 **Extended Semantic Web Conference (ESWC)**,
Programme Committee Member, Research Track & Resources Track.

2021–2024 **Extended Semantic Web Conference (ESWC)**,
Programme Committee Member, Poster and Demo Track.

2023–2024 **International Workshop on Data Management for Knowledge Graphs (DMKG)**,
Programme Committee Member, co-located with ESWC 2023.

2024 **Wiki Workshop**,
Programme Committee Member, Organized by the Wikimedia Foundation.

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

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

Event Organization

2024 **23rd International Semantic Web Conference**, *Nov. 11–15, Baltimore*, MD, USA,
Web Presence and Publicity Co-Chair.

2024 **17th LDBC Technical User Meeting**, *June 9, Santiago*, Chile,
Co-Organizer.

2023 **15th Alberto Mendelzon International Workshop on Foundations of Data Management (AMW)**, *May 22–26, Santiago*, Chile,
Local Organization Chair.

Tutorials

Jun. 2023 **Summer Institute of Computational Social Science (SICSS-Chile)**, *"An Introduction to Knowledge Graphs"*, Santiago, Chile.

Invited Talks

Apr. 2024 **Universidad de Chile**, *"Mirando el Mundo Real a través de los Grafos"*, Charlas IDIA, Santiago, Chile.

Feb. 2023 **Linköping University**, *"Query Translation to Access Virtual Views of Property Graphs"*, Linköping, Sweden.

Apr. 2021 **Linköping University**, *"Similarity Queries on the Web"*, Linköping, Sweden (Online).

Feb. 2020 **National University of Ireland, Galway**, *"Similarity Queries on the Web"*, Galway, Ireland.

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

○ **Sergio Gálvez**,
Thesis: "An Interoperable Knowledge Graph for the Popular American Art Museum".
B. Sc. in Computer Science, Universidad de Chile. Ongoing. Role: Supervisor, co-supervised with Benjamin Bustos

○ **Agustín Valenzuela**,
Thesis: "A Large-scale Astronomical Knowledge Graph".
B.Sc. in Computer Science, Universidad de Chile. Ongoing. Role: Supervisor

○ **Matías López**,
Thesis: "Aplicación Web para Diseñar Bases de Datos".
B.Sc. in Computer Science, Universidad de Chile. Graduated in March 2024. Role: Supervisor, co-supervised with Aidan Hogan

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

Teaching

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

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

- **Information Retrieval**, *DCC, Universidad de Chile*, Autumn 2020, 2021, 2022, and 2023.
  Course level: diploma
  Role: Lecturer (profesor de cátedra)
- **Database Management with Python**, *DCC, Universidad de Chile*, Autumn 2022 and 2023.
  Course level: extension diploma
  Role: Lecturer (profesor de cátedra)
- **Data Project**, *DCC, Universidad de Chile*, Autumn 2022 and 2023.
  Course level: extension diploma
  Role: Co-lecturer
- **Semantic Web**, *IDA, Linköping University*, Spring 2023.
  Course level: PhD
  Role: Co-lecturer
- **Database Technology**, *IDA, Linköping University*, Autumn 2021 and 2022.
  Course level: undergraduate
  Role: Lab Assistant
- **Big Data Analytics**, *IDA, Linköping University*, Spring 2022.
  Course level: masters
  Role: Lab Assistant
- **Advanced Data Models and Databases**, *IDA, Linköping University*, Autumn 2021.
  Course level: masters
  Role: Co-lecturer
- **Databases**, *DCC 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**, *DCC, Universidad de Chile*, Spring 2017 and Autumn 2018.
  Course level: diploma
  Role: Lecturer (profesor de cátedra)
- **Design and Programming Methodologies**, *DCC, 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**, *DCC, Universidad de Chile*, Spring 2014, 2015, and 2016.
  Course level: undergraduate and graduate
  Role: Teaching assistant (ayudante)
- **Algorithms and Data Structures**, *DCC, Universidad de Chile*, Spring 2014, Autumn 2016.
  Course level: undergraduate
  Role: Teaching assistant (profesor auxiliar)

- **Content-based Image and Video Search**, *DCC, Universidad de Chile*, Autumn 2016.
  Course level: undergraduate and masters
  Role: Teaching assistant (ayudante)
- **Introduction to Programming**, *DCC, Universidad de Chile*, Spring 2015.
  Course level: undergraduate
  Role: Teaching assistant (profesor auxiliar)
- **Discrete Mathematics**, *DCC, Universidad de Chile*, Autumn 2015.
  Course level: undergraduate
  Role: Teaching assistant (ayudante)