Curriculum vitae

Personal information

- **Name and surname**: Mallku Ernesto Soldevila Raffa

- **E-mail**: mallkuernesto@gmail.com

- **Personal web page**: mallku2.github.io

Academic background

- **Post-doctorate in Computer Science**   **Córdoba, Argentina**
  Facultad de Matemática, Astronomía, Física y Computación, UNC   *2021 – present*

  - Research topic: *Tools for improving the construction of trustable models of computation for programming languages*.
  - Advisors: Dr. Carlos Areces and Dr. Beta Ziliani.

- **Doctorate in Computer Science**   **Córdoba, Argentina**
  Facultad de Matemática, Astronomía, Física y Computación, UNC   *2015 – 2020*

  - Thesis title: *Operational semantics and its application to the study of garbage collection, in Lua 5.2*.
  - Advisors: Dr. Daniel Fridlender and Dr. Beta Ziliani.

- **Licenciatura en Ciencias de la Computación**   **Córdoba, Argentina**
  (BCs (3 years) and MSc (2 years) in Computer Science)   *2007 – 2015*
  At *Facultad de Matemática, Astronomía, Física y Computación*, UNC.

  - Grade average (on a 10-point scale): 9.04

- **Information Systems Engineering**   **Córdoba, Argentina**
  UTN, Facultad Regional Córdoba   *2005 – 2006*

  - Studied up to the second year.

Publications

- Peer-reviewed:

  - Mallku Soldevila, Beta Ziliani and Rodrigo Ribeiro. **Redex $\to$ Coq: towards a theory of decidability of Redex's reduction semantics**. February, 2024. In Leibniz International Proceedings in Informatics of the Fifteenth Conference on Interactive Theorem Proving, ITP'24.

  - Araceli Acosta and Mallku Soldevila. **Percepción de estudiantes sobre la carrera de Analista en Computación en la UNC** (spanish). In *Memorias del Simposio Argentino de Educación en Informática*, Vol. 9 Núm. 9 (2023).

  - Mallku Soldevila, Beta Ziliani and Bruno Silvestre. **From specification to testing: semantics engineering for Lua 5.2**. In *Journal of Automated Reasoning*, August, 2022.

  - Mallku Soldevila, Beta Ziliani and Daniel Fridlender. **Understanding Lua's garbage collection: Towards a formalized static analyzer**. In *Proceedings of the 22nd International Symposium on Principles and Practice of Declarative Programming*, PPDP'20, 2020.

  - Mallku Soldevila, Beta Ziliani, Bruno Silvestre, Daniel Fridlender and Fabio Mascarenhas. **Decoding Lua: Formal semantics for the developer and the semanticist**. In *Proceedings of the 13th ACM SIGPLAN Dynamic Languages Symposium*, DLS'17, 2017.

- Thesis:

  - Mallku Soldevila. PhD thesis: **Semántica operacional y su aplicación para el estudio de recolección de basura, en Lua 5.2** (spanish). In *Biblioteca Daniel Oscar Sonzini*, FAMAF, UNC. August, 2021.

  - Mallku Soldevila. Bachelor thesis: **Formalización de la semántica del lenguaje de programación Lua** (spanish). In *Biblioteca Daniel Oscar Sonzini*, FAMAF, UNC. March, 2015.

Talks/posters

- *Redex → Coq: towards a theory of decidability of Redex's reduction semantics*   **Saarbrücken, Alemania**
  At Saarland University, *Dependable Systems and Software* group.   *April, 2024*

- **Extended talk:**   **Salta, Argentina**
  Introducción a los asistentes de pruebas basados en teoría de tipos dependientes (spanish).   *September, 2023*
  At *Reunión Anual De La Unión Matemática Argentina* (*UMA'23*).

- *Understanding Lua's garbage collection: Towards a formalized static analyzer*.   **Virtual**
  At *22nd International Symposium on Principles and Practice of Declarative Programming*.   *September, 2020*

- *Semántica operacional y su aplicación para el estudio de recolección de basura, en Lua 5.2*   **Virtual**
  At *Seminario LoRel* (listed in researchseminars.org).   *July, 2020*

- *Decoding Lua: Formal semantics for the developer and the semanticist*.   **Vancouver, Canadá**
  At *13th Dynamic Languages Symposium, DLS'17*   *October, 2017*
  conf.researchr.org/track/dls-2017/dls-2017

- **Poster:** *Decoding Lua: Formal semantics for the developer and the semanticist*.   **Vancouver, Canadá**
  At *ACM SIGPLAN conference on Systems, Programming, Languages and Applications:*   *October, 2017*
  Software for Humanity, SPLASH'17 Poster track
  2017.splashcon.org/track/splash-2017-Posters

- *Dos métodos para verificar que un lenguaje de programación no tiene bugs* (spanish).   **Córdoba, Argentina**
  B. Ziliani and M. Soldevila.   *November, 2016*
  At *Jornadas de la Computación, FAMAF, UNC, JCC-UNC*

Scientific committees/participation in scientific events

- **Member of the Computing Science's Advising Commission**.   **Córdoba**
  In *Facultad de Matemática, Astronomía, Física y Computación* (*FAMAF, UNC*).   *October, 2023*

- **Member of the Computing Science's Curricular Committee**.   **Córdoba**
  In *Facultad de Matemática, Astronomía, Física y Computación* (*FAMAF, UNC*).   *September, 2023*

- **Invited reviewer.**   **Virtual**
  In *51st ACM SIGPLAN Symposium on Principles of Programming Languages* (POPL 2024).   *August, 2023*

- **Member of the Artifact Evaluation Committee**.   **Virtual**
  In *28th ACM SIGPLAN International Conference on Functional Programming* (ICFP 2023).   *June, 2023*

- **Member of the organizer committee and chair**.   **Córdoba**
  In *Tercer Encuentro del Grupo de Fundamentos de Lenguajes de Programación 2023* (FunLep'23).   *May, 2023*

- **Member of the Artifact Evaluation Committee and Evaluation Committee.**   **Virtual**
  In *37th European Conference on Object-Oriented Programming* (ECOOP 2023).   *April, 2023*

- **Member of the Artifact Evaluation Committee**.   **Virtual**
  In *44rd ACM SIGPLAN Conference on Programming Language Design and Implementation* (PLDI 2023).   *April, 2023*

- **Member of the Artifact Evaluation Committee**.   **Virtual**
  In *27th ACM SIGPLAN International Conference on Functional Programming* (ICFP 2022).   *August, 2022*

- **Member of the Artifact Evaluation Committee**.   **Virtual**
  In *43rd ACM SIGPLAN Conference on Programming Language Design and Implementation* (PLDI 2022).   *April, 2022*

- **Session chair**.   **La Falda, Córdoba**
  In *Noveno Taller Argentino de Fundamentos para el Análisis y la Construcción Automática*
  de Software (FACAS 2022).   *March, 2022*

- **Member of the Artifact Evaluation Committee**.   **Virtual**
  In *26th ACM SIGPLAN International Conference on Functional Programming* (ICFP 2021).   *August, 2021*

- **Member of the Artifact Evaluation Committee**. **Virtual**
  In *25th ACM SIGPLAN International Conference on Functional Programming* (ICFP 2020). *September, 2020*

- **Member of the Artifact Evaluation Committee**. **Virtual**
  In *22nd ACM SIGPLAN International Conference on Functional Programming* (ICFP 2017). *September, 2017*

Teaching/supervision

- **Examination board member.** **Córdoba, Argentina**
  Undergraduate thesis. Bachelor in Computer Science. *December, 2023*
  Student: Marsiglione, Francisco
  Topic: "Análisis y clasificación de preguntas y respuestas en espacios virtuales de formación profesional sobre desarrollo de software."
  Advisors: Dr. Benotti, Luciana and Dr. Echeveste, M. Emilia.

- **Assistant Professor at "Introduction to Algorithms".** **Córdoba, Argentina**
  4 semesters, 10hs/week. Undergraduate course, at FAMAF, UNC. *August, 2022 - August, 2024*

- **Supervisor of thesis to obtain a Bachelor's Degree in Computer Science.** **Córdoba, Argentina**
  Student: Barraco, Ramiro Julián *March, 2021*
  Topic: "Formalization of type narrowing in the Crystal programming language."
  Under development.

- **Professor at "Undergraduate entrance course to FAMAF, UNC".** **Córdoba, Argentina**
  FAMAF, UNC. *February, 2022*

- **Undergraduate teaching assistant at FAMAF, UNC**: **Córdoba, Argentina**

  - "Algorithms and Data Structures 1" *August - November, 2011*

  - "Introduction to Algorithms" *March - June, 2011*

  - "Programming paradigms" *March - June, 2010*

Funding

Grants received

- **Internal postdoctoral fellowship** **Córdoba, Argentina**
  Granted by Conicet (Argentina) *2021 - 2024*
- **Internal doctoral fellowship** **Córdoba, Argentina**
  Granted by Conicet (Argentina) *2015 - 2020*
- **Research support grant, type 1** **Goiânia, Goiás, Brazil**
  Granted by "Fundação de Apoio à Pesquisa" (Funape, www.funape.org.br/site/, Brazil) *January - March, 2013*
- **Research support grant, type 1** **Goiânia, Goiás, Brazil**
  Granted by "Fundação de Apoio à Pesquisa" (Funape, www.funape.org.br/site/, Brazil) *2012*
- **Fellowship: Tecnologías de la Información y de las Comunicaciones** **Córdoba, Argentina**
  Granted by "Agencia Nacional de Promoción Científica y Tecnológica" (Argentina) *2011*
- **Fellowship: Tecnologías de la Información y de las Comunicaciones** **Córdoba, Argentina**
  Granted by "Agencia Nacional de Promoción Científica y Tecnológica" (Argentina) *2010*

Groups

- **Member of** *"Logics, Interaction and Intelligent Systems"* (LIIS). **Argentina**
  Director: Dr. Carlos Eduardo Areces.

- **Member of** *"Logics and Dynamics of Programming Languages"* (SINFIN). **International**
  General coordination:
  Delia Kesner (Université Paris-Diderot, France)
  Santiago Figueira (CONICET & Universidad de Buenos Aires, Argentina)

Projects

- **Member of project** *"Dynamic Logics (Reloaded) − DL(R)".*   **International**
  SticAmsud Project.   *2024 - 2025*
  Project coordinator (for group at FAMAF, UNC): Dr. Carlos Eduardo Areces.

- **Member of project** *"Verificación Formal de la Semántica de Reducción".*   **Córdoba, Argentina**
  SECyT Consolidar II, UNC.   *2018 - 2022*
  Researcher in charge: Dr. Beta Ziliani.

- **Member of project** "Formalización del lenguaje de programación argentino Crystal"   **Córdoba, Argentina**
  SECyT Consolidar II, UNC.   *2018 - 2020*
  PICT D No. 2017-3315, Agencia.
  Researcher in charge: Dr. Beta Ziliani.

Travel funding

- **Complete funding for 2 months to visit members of the MISSION project at Saarland University (Saarbrücken, Germany).**
  March-April, 2024.
  MISSION project: https://mission-project.eu/ (EUR$4,000).

- **Partial funding to attend the *44th ACM SIGPLAN Symposium on Principles of Programming Languages* (*POPL 2017*).**
  University of Wisconsin (US$1,320).

Industry work experience

- **Research and development of an ecology simulator (educative game).**   **Goiânia, Goiás, Brazil**
  At *Laboratório de Tecnologia da Informação e Mídias Educacionais* (*LabTime*), UFG   *January, 2012 - May, 2013*
  www.labtime.ufg.br

Courses, workshops

- **Java Programmer**   **Córdoba, Argentina**
  Programa ProFoCo, UTN, Facultad Regional Córdoba   *March - June, 2007*

    – Completed.
    – Professor: Ing. Valerio Frittelli.

- **Web development**   **Córdoba, Argentina**
  UTN, Facultad Regional Córdoba   *2006*

    – Completed (100 hours).
    – Professor Ing. Ricardo M. Espeche.

Languages

- **Spanish:** native language.

- **English:** advanced level.

- **Portuguese**: intermediate level.