Ignacio (Nacho) Cano

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Education

University of Washington — Seattle, WA
Ph.D., Computer Science and Engineering — 2019
Advisor: Arvind Krishnamurhty
Thesis: *Optimizing Distributed Systems using Machine Learning*

University of Washington — Seattle, WA
M.S., Computer Science and Engineering — 2015
Advisor: Carlos Guestrin
Thesis: *Towards Geo-Distributed Machine Learning*

Universidad Tecnológica Nacional — Córdoba, Argentina
M.Eng., Systems Engineering — 2015
Advisors: Eduardo Destéfanis and Mario Groppo
Thesis: *Distributed System for Collective Intelligence*

Universidad Blas Pascal — Córdoba, Argentina
B.Eng., Telecommunications Engineering — 2008
Advisor: Héctor Risso

Industry Experience

Google — Seattle, WA
Senior Software Engineer — Nov2020-present
Working on Vertex ML Metadata, a service within Vertex AI that lets you record the metadata and artifacts produced by your ML pipelines to help analyze, debug, and audit the performance of your ML workflows.

- Landed Public Preview and GA.
- Control plane Lead.
- Reduced request latency under load by 10x.

Software Engineer — Jan2019-Nov2020
Worked on Knative Eventing, an OSS project that deals with the subscription, delivery, and management of CloudEvents on top of Kubernetes, as well as on Google's offer called Events for Cloud Run for Anthos (CRfA).

- Landed Private and Public Previews of Events for CRfA.
- Sources WG Lead and Eventing approver.
- Top contributor of Knative-GCP as of Sept 2020.

Google — Mountain View, CA
Ph.D. Software Engineering Intern — Summer 2017
With *Andrey Gubichev*
Worked in the F1 team applying machine learning techniques to improve F1's query optimizer. In particular, we trained models for predicting cardinality of query (sub)plans as well as query runtime.

- Improved correlation of current cost model significantly (more than 3x).
- Reduced 2.5x the build size by fixing a Tensorflow Serving bug.
- Received a peer bonus from another team for helping with their ML tasks.

Nutanix Seattle, WA
Member of Technical Staff Intern Spring 2016
With *Srinivas Aiyar*
Worked on a data science project to characterize private clouds. Used machine learning techniques to improve task scheduling in Nutanix clusters.
- Performed an extensive characterization of on-premise clusters.
- Improved cluster average latency by up to 20% in simulated workloads.
- Published two papers (SoCC and NSDI).

Microsoft Redmond, WA
Research Intern Summer 2015
With *Markus Weimer*
Worked in the CISL team on a project to enable efficient cross data center machine learning using Apache REEF and YARN.
- Integrated REEF with a federated version of YARN.
- Enhanced REEF to support large models (more than 100M features).
- Published two papers (NIPS LearningSys and IEEE Data Eng. Bull.).

Intel Córdoba, Argentina
Senior Software Engineer 2011-2013
Participated in various projects that mainly involved the development of Intel's Application Store, also known as Intel AppUp Center.
- Led Java and Spring Framework trainings for a team of $\sim$ 60 people.
- Regarded as Java specialist and served as Scrum Master backup.
- Re-designed entire server components using proper design patterns.
- Received more than 10 peer bonuses for helping different team members.

Nimbuzz Córdoba, Argentina
Software Engineer 2009-2011
Worked in the development of Nimbuzz messenger for Blackberry devices. Also, involved in the development of Nimbuzz highly scalable backend services.
- Served as Team Leader backup in the Blackberry team.
- Improved performance and solved connection issues in our BB client.
- Lead developer of "Announcements" to promote the use of our clients.
- Designed and implemented services to support Nimbuzz 5M users.

Motorola Córdoba, Argentina
Software Engineer 2008-2009
Participated in the development of NBBS, Motorola's solution to remotely manage CPEs using OMA-DM and TR-069 protocols.
- Track Leader of NBBS-WiMAX, a team of 6 people.
- Designed and implemented enhancements to NBBS's OMA-DM stack.
- Followed strict protocols to comply with CMMI 5 development process.

Motorola Córdoba, Argentina
Intern 2006-2007
Participated in a mobile application (J2ME-based) project to manage personal health records using the Continuity of Care Record (CCR) standard.

Publications

I. Cano. *Optimizing Distributed Systems using Machine Learning*. Ph.D. thesis, University of Washington. 2019.

I. Cano, L. Chen, P. Fonseca, T. Chen, C. Cheah, K. Gupta, R. Chandra, A. Krishnamurthy. AdaRes*: Adaptive Resource Management for Virtual Machines*. Preprint. 2018.

I. Cano, M. Weimer, D. Mahajan, C. Curino, G. Matteo Fumarola, A. Krishnamurthy. *Towards Geo-Distributed Machine Learning*. In IEEE Data Engineering Bulletin, Global-scale Data Management Issue. December 2017.

I. Cano, S. Aiyar, V. Arora, M. Bhattacharyya, A. Chaganti, C. Cheah, B. Chun, K. Gupta, V. Khot, A. Krishnamurthy. Curator*: Self-Managing Storage for Enterprise Clusters*. In Proceedings of the Fourteenth USENIX Symposium on Networked Systems Design and Implementation (NSDI). 2017.

I. Cano, S. Aiyar, A. Krishnamurthy. *Characterizing Private Clouds: A Large-Scale Empirical Analysis of Enterprise Clusters*. In Proceedings of the Seventh ACM Symposium on Cloud Computing (SoCC). 2016.

I. Cano, M. Weimer, D. Mahajan, C. Curino, G. Matteo Fumarola. *Towards Geo-Distributed Machine Learning*. In Neural Information Processing Systems LearningSys Workshop (NIPS). 2015.

I. Cano, S. Singh, C. Guestrin. *Distributed Non-Parametric Representations for Vital Filtering: UW at TREC KBA 2014*. In Proceedings of the Twenty-Third Text Retrieval Conference (TREC). 2014.

Posters

I. Cano, S. Singh, C. Guestrin. *Streaming Document Filtering using Distributed Non-Parametric Representations.* In Terraswarm Annual Meeting. Berkeley, 2014.

I. Cano, S. Singh, B. Taskar, C. Guestrin. *Real-time Modeling of City Events: An Exploration on Seattle's Public Transportation.* In Terraswarm Annual Meeting. Berkeley, 2013.

Awards

Argentine Presidential Fellowship 2013-2015
Argentina's Presidential Cabinet and Fulbright Commission

Group Recognition Award 2012
Software and Services Group, Intel Corporation

Teamwork Role Model 2012
Argentina Software Design Center, Intel Corporation

Undergraduate Merit-based Scholarship 2002-2006
Universidad Blas Pascal

Graduate Coursework	CSE546 Machine Learning CSE547 Machine Learning for Big Data CSE521 Design and Analysis of Algorithms CSE550 Computer Systems CSE515 Statistical Methods (Graphical Models) CSE517 Natural Language Processing CSE544 Principles of Data Management CSE551 Operating Systems CSE599 Deep Learning Systems CSE599 Online and Adaptive Methods for Machine Learning
Skills	Languages: Java, Golang, Python, C++, C#, Javascript ML Fwks/Libs: Keras, Tensorflow, Sklearn, TFLearn, Numpy, Scipy, Pandas
Certifications	Sun Certified Java Programmer, Standard Edition 5.0 (Sun Microsystems) Certified Scrum Master (Scrum Alliance) Object Oriented Software Architecture Fundamentals (10 Pines) Advanced Object Oriented Software Architecture (10 Pines) Object Oriented Concepts (Brainbench)
Open Source Contributions	Knative: Kubernetes-based platform for managing serverless workloads Knative-GCP: Config and consumption of GCP events and services Vertex SDK: Python SDK for Vertex AI services Apache REEF: A stdlib for writing high performance apps on Big Data clusters RABIT: Fault-tolerant Allreduce and Broadcast for distributed ML apps
Languages	Spanish (native), English (advanced), French (intermediate)
References	Available upon request