

# C U R R I C U L U M    V I T A E

## PERSONAL INFORMATION

**Name** : Sebastián Andrés Zamorano Aliaga .  
**ID** : 16.192.227-7  
**Age** : 33 years old.  
**Birthdate** : January 6th, 1986.  
**Civil status** : Married.  
**Citizenship** : Chilean.  
**Residence** : Argentina #8625-A, La Florida.  
**City of Residence** : Santiago of Chile.  
**Mobile phone** : +56 9 99174334  
**E-mail** : sebastian.zamorano@usach.cl - sebastian.zamoranoa@gmail.com

## EDUCATION

**Academic Degree** : Ph.D. in Engineering Sciences,  
(2012-2016) Mention in Mathematical Modeling.  
University of Chile  
Santiago-Chile.

**Academic Degree** : Bachelor of Mathematics.  
(2004-2009) University of Santiago of Chile  
Santiago-Chile

**Undergraduate Studies** : Mathematical Engineering.  
(2004-2011) University of Santiago of Chile  
Santiago-Chile

## CURRENT AND RECENT PROJECTS

**March 2018-March 2021** Universidad de Santiago de Chile, Departamento de Matemática y Ciencia de la Computación. Responsible researcher Postdoctoral FONDECYT Grant N°3180322.

**January 2017-June 2017** Universidad de Santiago de Chile, Departamento de Matemática y Ciencia de la Computación. DICYT-USACH Postdoctoral position.

**March 2012-November 2016** Universidad de Chile, Departamento de Ingeniería Matemática. Ph.D. scholarship CONICYT-Nacional 2012 N°21120662.

## NEXT AND RECENT RESEARCH STAYS

**February 2020** George Mason University. Research stay with the Professor Dr. Mahamadi Warma, Virginia, United States.

**September 2019-October 2019** Universidad de Deusto. Research stay with the Professor Dr. Enrique Zuazua Iriondo, Bilbao, Spain.

**September 2018-October 2018** Universidad de Puerto Rico. Research stay with the Professor Dr. Mahamadi Warma, San Juan, Puerto Rico.

**March 2015-January 2016** Basque Center for Applied Mathematics. Research stay with the Professor Dr. Enrique Zuazua Iriondo, Bilbao, Spain.

## ORGANIZATION OF CONGRESS AND SEMINARS

**Organizer Thematic session on *Nonlocal PDE and control* – VII Partial Differential Equations, Optimal Design and Numerics.**  
Centro de Ciencias de Benasque Pedro Pascual, Benasque, Spain, August 2019.

**Organizer Thematic session *Young researchers* – VII Partial Differential Equations, Optimal Design and Numerics.**  
Centro de Ciencias de Benasque Pedro Pascual, Benasque, Spain, August 2019.

**Research seminar GAFEVOL – Evolution Equations and Functional Analysis Group.**  
Universidad de Santiago de Chile, Santiago, Chile, April 2019 to December 2019.

**XII Congress GAFEVOL 2018 – Evolution Equations and Functional Analysis.**  
Universidad de Santiago de Chile, Santiago, Chile, November 2018.

## UPCOMINGS AND RECENTS TALKS

### **European Numerical Mathematics and Advanced Applications Conference 2019 - ENUMATH 2019.**

Egmond aan Zee, Holland, September 2019.

Title: *Controllability results for the Moore-Gibson-Thompson equation arising in nonlinear acoustic.*

### **VII Partial Differential Equations, Optimal Design and Numerics.**

Centro de Ciencias de Benasque Pedro Pascual, Benasque, Spain, August 2019.

Title: *Exterior control problem of strong damped nonlocal wave equation and nonlocal heat equation.*

### **VII Partial Differential Equations, Optimal Design and Numerics.**

Centro de Ciencias de Benasque Pedro Pascual, Benasque, Spain, August 2019.

Title: *Turnpike property for 2 and 3-D Navier-Stokes systems.*

### **Workshop on Inverse and Control Problems for Physical Systems.**

Universidad Técnica Federico Santa María, Valparaíso, Chile, December 2018.

Title: *Analysis of the controllability from the exterior of strong damping nonlocal wave equation.*

### **III Workshop de Ciencia.**

Universidad de Santiago de Chile, Santiago, Chile, November 2018.

Title: *Controllability of PDE: moving control.*

### **Primer Encuentro de Estudiantes de Postgrado en Matemática.**

Universidad de Santiago de Chile, Santiago, Chile, December 2017.

Title: *Controllability results for the Moore-Gibson-Thompson equation arising in nonlinear acoustic.*

**X Congress GAFEVOL 2016 – Evolution Equations and Functional Analysis.**

Universidad de Santiago de Chile, Santiago, Chile, November 2016.

Title: *Turnpike Property for two-dimensional Navier–Stokes equations.*

**XXIX Jornada de Matemática de la Zona Sur.**

Universidad de Talca, Talca, Chile, April 2016.

Title: *Turnpike Property for two-dimensional Navier–Stokes equations.*

**Summer School - Workshop, Partial Differential Equations, Optimal Design and Numerics.**

Centro de Ciencias de Benasque Pedro Pascual, Benasque, Spain, August 2015.

Title: *Size Estimates for the Inverse Stokes Problem.*

**Workshop Numeriwaves Working Group.**

Basque Center for Applied Mathematics, Bilbao, Spain, April 2015.

Title: *Two Inverse Problems for the Stokes Equations and the Turnpike Property in the Context of Optimal Design.*

**LXXXII Encuentro Anual Sociedad Matemática de Chile.**

Olmue, Chile, November 2013.

Title: *Size Estimates for the Inverse Stokes Problem.*

**PUBLICATIONS**

U. BICCARI, R. PONCE, M. WARMA AND S. ZAMORANO, *Exterior control problem under positive constraints for nonlocal 1-D heat equation.* In preparation.

E. CERPA, C. LIZAMA AND S. ZAMORANO, *Boundary stabilization for a coupled system of a hyperbolic equation with an ordinary differential equation and applications.* In preparation.

S. ZAMORANO, *On the exterior controllability problem for a nonlocal Sobolev–*

*Galpern type equation*. Submitted.

- M. WARMA AND S. ZAMORANO, *Null controllability from the exterior of a one-dimensional nonlocal heat equation*. Submitted.
- C. LIZAMA, M. WARMA AND S. ZAMORANO, *Exterior controllability properties of a nonlocal Moore–Gibson–Thompson equation*. Submitted.
- R. LECAROS, A. MERCADO AND S. ZAMORANO, *An inverse problem for Moore–Gibson–Thompson equation arising in high intensity ultrasound*, (2019). Submitted.
- M. WARMA AND S. ZAMORANO, *Analysis of the controllability from the exterior of strong damping nonlocal wave equation*. To appear in ESAIM-COCV (2019).
- C. LIZAMA. AND S. ZAMORANO, *Controllability results for the Moore–Gibson–Thompson equation arising in nonlinear acoustics*, Journal of Differential Equations 266 (2019) 7813–7843.
- S. ZAMORANO, *Turnpike property for two-dimensional Navier-Stokes equations*, Journal of Mathematical Fluid Mechanics 20(3) 869–888 (2018).
- E. BERETTA, C. CAVATERRA, J.H. ORTEGA, AND S. ZAMORANO, *Size estimates of an obstacle in a stationary Stokes fluid*, Inverse Problems, 33(2), 2017.  
<<http://dx.doi.org/10.1088/1361-6420/33/2/025008>>.
- S. ZAMORANO AND H. HENRÍQUEZ, *Feedback stabilization of abstract neutral linear control systems*, Math. Control Signals Syst. (2013) 25:345-386.

## TEACHING ACTIVITIES

### Thesis advisory:

#### **2018–2019 In preparation**

Title: Controlabilidad desde la frontera para la ecuación de van Wijngaarden–Eringen.

Student: Pablo Márquez A.

Degree: Mathematical Engineering.

#### **2018. In preparation**

Title: Estimación numérica del tamaño de un objeto inmerso en un fluido modelado por la ecuación de Stokes.

Student: Angelo Bustos González.

Degree: Mathematical Engineering.

#### **2017–2018.**

Title: Problema de optimización de forma finito–dimensional en largos intervalos de tiempo: propiedad de turnpike.

Student: Juan José Maulén Muñoz

Degree: Mathematical Engineering.

### Teaching:

#### **2019: Algebra I.**

Universidad de Santiago de Chile. Mathematical Engineering.

#### **2018: Control of Partial Differential Equations Seminar, Introduction to Engineering, Algebra I**

Universidad de Santiago de Chile. Mathematical Engineering.

#### **January 2018: Mathematics III, Differential and Integral Calculus, Ordinary differential equations**

Universidad de Chile.

#### **2017: Calculus I, Algebra I, Introduction to Engineering**

Universidad de Santiago de Chile. Mathematical Engineering.

**2017: Differential and Integral Calculus, Mathematics III**

Universidad de Chile.

**2016: Probabilities, Calculus IV (Complex Analysis), Analysis and Applications of the Navier-Stokes equations**

Universidad de Santiago de Chile. Mathematical Engineering.

**2016: Differential and Integral Calculus, Probabilities and Statistics**

Universidad de Chile.

**2016: Ordinary differential equations, Linear Algebra, Calculus II.**

Universidad de los Andes.

**2014: Controllability and optimal control.**

Universidad de Santiago de Chile. Mathematical Engineering.

**2014: Probability Theory, Applied Statistics, Analytical Geometry and Introduction to Calculus**

Universidad de los Andes.

**2014: Probabilities and Statistics.**

Universidad de Chile. .

**2013: Sobolev spaces and applications, Probabilities.**

Universidad de Santiago de Chile. Mathematical Engineering.

**March 2010-September 2013: Calculus I and II.**

Universidad de Santiago de Chile. Statistics Engineering.

## **OTHER BACKGROUND**

**October 2017-November 2017** Validation of Measuring Instruments to Pre-University CEPECH, Santiago, Chile.

**May 2017-August 2017** Technical advice to VSI Limited company for the deduction of equation to calculate the volume of liquefied gas storage tanks.

**March 2014-October 2014** Member of the self-assessment report committee for accreditation of the Mathematical Engineering degree, Universidad de Santiago de Chile.

**May 2011-February 2012.** Ersnt & Young Santiago. Staff, Financial Services Office, Risk and Compliance Services.