André Luís de Araujo
Ph.D. Candidate

Architecture, Technology and City Ph.D. Program
University of Campinas (UNICAMP)

address	Sebastião da Rocha Pita St., number 25, Campinas, SP. zipcode: 13080300
phone	+ 55 19 3521 2909 +55 19 988 264 568
email	a.araujo@fec.unicamp.br
google schoolar	http://scholar.google.com.br/citations?user=OdaKqooAAAAJ&hl=en
c.v. (portuguese)	http://buscatextual.cnpq.br/buscatextual/visualizacv.do?id=K4138492T4
Reseach support	http://www.bv.fapesp.br/en/pesquisador/669971/andre-luis-de-araujo/
academia.edu	https://unicamp.academia.edu/andrearaujo

education

Ph.D.	Design Technology School of Civil Eng., Arch. & Urb. Design - UNICAMP Advisor: Gabriela Celani Thesis Title: Emergence and complexity in spatial structures Ph.D. Scholarship: FAPESP - São Paulo Research Foundation	2012 - pres.
M.Sc.	Civil Engineering Federal University of Viçosa Advisor: José Luiz Rangel Paes Dissertation Title: Methodological proposal for the design of masonry veneer systems in institutional buildings with steel structure M.Sc. Scholarship: CAPES - Coordination for the Improvement of Higher Level -or Education- Personnel	2007-2010
BA	Architecture and Urban Design Federal University of Viçosa Advisor: Pedro Novais de Lima Jr. Course Completion Assignment Title: A look at urban centrality	2001-2006

honors

Student Body Represent at School of Civil Engineering, Architecture and Urban Design Council UNICAMP	2014
Student Body Represent at Architecture, Technology and City Ph.D. Program Council UNICAMP	2013
Honorable mention at South America bioclimatic architecture competition José Miguel Biennial - ENCAC	2011

experience

teaching assistant	Fundamental concepts of architecture for civil engineers Professor: Regina Tirelo and Gabriela Celani UNICAMP	2014
teaching assistant	Complexity - Architecture and Urban Design Professor: Gabriela Celani UNICAMP	2014
researcher	Lab. of Automation and Prototyping for Arch. and Construction UNICAMP	2012-pres
teaching assistant	Responsive Architecture - Architecture and Urban Design Professor: Anne Save de Beaurecueil UNICAMP	2012-2012
assistant professor	Descriptive Geometry and CAAD - Architecture and Urban Design Federal University of Viçosa	2009-2011
assistant professor	Mechanical drawing - Production Engineering Faculty of Viçosa	2011-2011
architect	Structural and Mechanical Engineering Laboratories Building Federal University of Viçosa	2009-2011
architect trainee	Arco Architecture Viçosa	2006-2007

indicators

	Scientific Journals Research Papers	2
	Conference Papers	10
	Invited Lectures	3
	Virtual Learning Book	1

training

	Academic writing	2012
	Generative components	2012
	Energy efficiency of buildings	2010
	Interlocked floor	2002
	Environmental management	2002

publications

journals	Samba reception desk: compromising aesthetics, fabrication and structural performance with the use of virtual and physical models in the design process Design management and technology - Brazil	2014
	Mansory wall systems for steel buildings: detailing based in pathological problems prevention Design management and technology - Brazil	2013

conferences (last five)	Spatial steel trusses: Integrating structural pre-dimensioning requirements in the early stages of the parametric design Sigradi, Uruguay	2013
	Samba reception desk: compromising aesthetics, fabrication and structural performance in the design process Ecaade, Czech Republic	2012
	Design experiment with the use of Voronoi diagrams in Grasshopper plug-in: a roof structure Sigradi, Brazil	2012
	Comparative between software for structural analisys linked to parametric modeling environment: case study with the plug-in Scan-and-Solve for Rhinoceros Sigradi, Brazil	2012
	Parametric design and digital fabrication of a reception desk: a design exercise Sigradi, Brazil	2012

complementary

Ph.D. Abstract Sometimes, complexity refers to confusion, embarrassment and difficulties of understanding. However, there's a kind of scientific problems related to organized complexity wherein statistics and computation tools can help to identify essential features of their organization. Some of these tools are inspired by theories from biology such as evolutionary algorithms and artificial life. In computational design, the same concepts are used in structural form finding process, when it's intended to simulate this complexity. In this context, there are two design approaches: top-down, in which design process begins with a complex and structurally inefficient shape, and then, refining the solution using optimization techniques, bottom-up, in which design process begins with components (agents), and then, their self-organization results in emergent complexity. Currently, researchers have been used more global shape optimization than agents interaction, because the last ones are commonly standardized, and this is represents a limitation in form finding process. Assuming that the use of parametric components to construct a bottom-up generative system allows the same formal freedom of top-down approach, but with the advantages of self-organization, this research aims to propose a design method for spatial structures based on concepts of emergence and complexity. In research method, we intend to indentify and compile rules in case studies to develop an algorithm using computational interactive and incremental method. After that, we'll evaluate assembly and feasibility aspects with physical experiments and computational simulations. Among outcomes, it's expected to propose a new method for complex spatial structures design.