

Biography

Stig Anton Nielsen is Architect, PhD student, and researcher. His research attempts to combine notions from philosophy, artificial intelligence, robotics as well as material and non-material computation, in order to manage and modify the existing build environment. In 2008 he received his Master of Architecture at the Royal Academy of Fine Arts, School of Architecture, Copenhagen, with the project, 'Metro Mechanics'. The project received national and international attention. In the years 2008-2012 he worked both at the at the Danish architecture office COBE, as well as the internationally renowned research Center for IT and Architecture (CITA). At CITA he explored computation, large scale CNC fabrication, rapid prototyping and robotic assembly.

He has been teaching at the Royal Academy of Fine Arts and Chalmers University of Technology, and hosted several international workshops on physical computation. In 2012 he started his PhD research project at Chalmers University of Technology, Dept. of Architecture, where he collaborates with researchers from Computer Science, in both teaching, experimentation and publication. In addition to his PhD, Stig is consulting F&P Personal Robotics, and he was recently Guest Researcher at the Chair for Computer Aided Architectural Design (CAAD) at ITA, ETH.

STIG ANTON NIELSEN

Architect Researcher and Maker.

Licensed Architect, Arkitektforeningen Danmark.

Strong Research Environment

»Architecture in the Making. Architecture as a Making Discipline and Material Practice.«

ResArch, National Swedish Research Network

ENHSA -European Network of Heads of Schools of Architecture

Fields of Interest

Making and Fabrication

Theory of Technology

Media Theory

Robotics

Artificial Intelligence

Machine Learning

Parametric Design

Programming

Physical Programming

Philosophy and Cognitive Science

Curriculum vitae

- 2015- Scientific Consultant F&P-Personal Robots, *Dr. Hansruedi Früh*, Zurich
- 2014-2015 Guest Researcher at ETH, Chair of CAAD *Prof. Ludger Hovestadt*
- 2012- Chalmers Technical University, Dept. Architecture, PhD fellow
- 2012-12 2x Marsvik Arkitekter, Project Architect, Lund Sweden. Ref: Christoffer Marsvik cm@2xma.se
- 2009 IT-University Copenhagen, Object Oriented Modelling and Design. and JAVA Programming.
- 2008-2012 CITA, Center for IT and Architecture at the Danish Royal Academy of Arts, School of Architecture (KADK). *Mette Ramsgaard Thompsen. 'Dermoid'*-Mark Burry, *'Distortion 2.0'*- Martin Tamke, Brady Peters. *'Dermoid 2.0'*-Martin Tamke and Aron Fidjeland. Exhibit on ROM, *'Lamella'*-Martin Tamke
- 2006-2009 COBE Architects, *Dan Stubbergaard and Vanessa Miriam Carlow 'Oslo Central Station', 'Horsens Havn', 'Nordhavnen'*. Dan@cobe.dk
- 2006-2008 Danish Royal Academy of Fine Arts, School of Architecture, *Loctor Cort Ross Dinesen*
- 2007 Sommerskole, tegningsophold på Hydra, Grækenland. *Cort Ross Dinesen og Claus Peder Pedersen. 'Struktur og serie', 'Metro Mechanics'*; <http://www.karch.dk/rumogform/studieprojekter/stig/stig.htm>
- 2005-2006 MVRDV(NL) Internship *Winy Maas, 'Newer Orleans', 'NY -Housing'*.
- 2005 Delft University of Technology, Faculty of Architecture, Hyperbody, *Prof. Kas Österhuis*, Urbanbody course. *Interactive urban prototype, 'SERVO'* <http://www.baunetz.de/aip/2005/home/stignielsen/>
- 2004 Delft University of Technology, *Prof. Tony Fretton*, Faculty of Architecture, Interior,

- 2001-03 Danish Royal Academy of Fine Arts, School of Architecture, Bachelors, *Lector. Cort Ross Dinesen*
- 2001 Holbæk Artschool, Sculpture, Ceramics, Drawing, *Bjørn Ignatius Øckenholts*
- 1997-2000 Gammel Hellerup Gymnasium, Mathematics and Physics A-level, *Preben Bundgaard*. Denmark
- 1987-1997 Elementary School Vedbæk Skole, Denmark
- 1981 Born 29th of June 1981 in Rudersdal, Denmark. Younger of two sons of Dipl. Ing. Klaus Anton Nielsen And Solveig Anton Nielsen.

Awards, grants and third-party funding

- 2004-2006 Margot og Thorvald Dreyers fond, supporting the Holland study exchange and internship 2004-2006.
- 2008-2009 Kunstfondens rejeslegat; Study trip to present the project 'Programmerede Metrostationer' and participate in 'Smart Geometry -09' San Francisco, USA.
- 2012-2017 Architecture in the Making; Funds up to 5 years of PhD studies and teaching at Chalmers University of Technology

Workshops Organized

- 2008 Dynamic Descriptions, September 2008, with Martin Tamke, Jacob Riiber, School of Architecture department 8, candidate students.
- 2008 Behaving Structures, November 2008, with Martin Tamke, Jacob Riiber, School of Architecture department 8, candidate students.
- 2010 EASA 2010 -Responsive Environments 14 days of workshop introducing microprocessors and sensor technology, with the aim to develop a series of interactive environments in the city of Manchester. 13 Participants from all over Europe.
- 2010 Material Behaviour, November 2010 with Mark Burry, Jane Burry and others, School of Architecture department 2, 21 candidate students. An eight days research workshop developing topological suggestions for project 'Dermoid'.
- 2011 PathsToProduction, Januar 2011 with Mark Burry, Jane Burry and others, School of Architecture Ek2, 19 candidate students. An eight days research workshop developing the detailed solutions for project 'Dermoid'.
- 2011 SmartGeometry, March 2011 Building the Invisible. SG-Group, School of Architecture, participants from world wide. As CITA and the Royal Academy of Fine Arts was hosting the event I was deeply involved with the planning of everything from participants acceptance, payments to materials orders and spatial requirements.
- 2011 OSSAWAW 2011 – Urban Phenomena with Arch. Michal Gdak, Poly Technical University Warsaw, Department of Architecture Oct 2011. Invited as workshop leaders we did a 6 day workshop, 12 students introduced to microprocessors and sensor technology. First phase just developing conceptual and theoretical frame, second phase was making interactive materially active 'Synapses' for the city of Warsaw.
- 2015 Dynamic Environments, at IAAC 2015, With Areti Markopoulou, Manuel Kretzer, Alexandre Dubor, Carlos Bausa. The workshop was set as a collaboration between the three schools, IAAC, Chalmers, and ITA. It focused on the design of material behaviors in architecture, using novel materials and machines.

Peer reviewed Journal Papers

- 2015 Nielsen, Stig Anton. »Propositional architecture and the paradox of prediction.« ENSHA archiDOCT, The e-journal dissemination of doctoral research in Architecture, Issue 2-2 February 2015.

Peer reviewed scientific articles

- 2015 Dancu, Alexandru; Nielsen, Stig Anton; Kening Zhu, Adviye Ayca Ünlüer; Max Witt; Cathrine Hedler; Hanna Frank; Axle Pelling; Christian Carlson; Morten Fjeld. »Emergent Interfaces: Constructive Assembly of Identical Units« CHI'15 Extended Abstracts, April 18{23, 2015, Seoul, Republic of Korea. 2015 ACM 978-1-4503-3146-3/15/04
- 2014 Nielsen, Stig Anton, and Alexandru Dancu. »Propositional Architecture using Induced Representation.« Proceedings of ENHSA Whats The Matter, Materiality and Materialism at the Age of Computation, ISBN 978-960-89320-6-7
- 2014 Nielsen, Stig Anton, and Alexandru Dancu "Layered subsumption embodied in units of intelligent material building systems" Proceedings WIP of TEI'14, Munich, Germany.
- 2014 Nielsen, Stig Anton, and Alexandru Dancu. »Embodied computation in soft gripper.« Proceedings of the 2014 ACM/IEEE international conference on Human-robot interaction. ACM, 2014.
- 2013 Nielsen, Stig Anton. »Physical Form Finding by Embedded Sensors.« eCAADe 31. Vol. 1. 2013.
- 2013 Nielsen, Stig Anton. »A process where performance drives the physical design.« Rethinking Prototyping. Vol. 2013. 2013.
- 2013 Burry, Jane, et al. »Understanding Heat Transfer Performance for Designing Better Façades.« (2013).
- 2012 Tamke, Martin, et al. »Design Environments for Material Performance.« Computational Design Modelling. Springer Berlin Heidelberg, 2012. 309-318.
- 2012 Tamke, Martin, et al. »A new material practice: integrating design and material behavior.« Proceedings of the 2012 Symposium on Simulation for Architecture and Urban Design. Society for Computer Simulation International, 2012.
- 2012 Ceramic Perspiration: Multi-Scalar Development of Ceramic Material, Lilley, Brian ; Hudson, Roland ; Plucknett, Kevin ; Macdonald, Rory ; Cheng, Nancy Yen-Wen ; Nielsen, Stig Anton ; Nouska, Olympia ; Grinbergs, Monika ; Andematten, Stephen ; Baumgardner, Kyle ; Blackman, Clayton ; Kennedy, Matthew ; Chatinhu, Monthira ; Tianchen, Dai ; Sheng-Fu, Chen. ACADIA 12: Synthetic Digital Ecologies [Proceedings of the 32nd Annual Conference of the Association for Computer Aided Design in Architecture (ACADIA) ISBN 978-1-62407-267-3] San Francisco 18-21 October, 2012), pp. 97-108
- 2011 'Responsive Acoustic Surfaces: Computing Sonic Effects', Peters, Brady; Tamke, Martin; Nielsen, Stig Anton; Andersen, Søren Vestbjerg; Haase, Mathias. RESPECTING FRAGILE PLACES [29th eCAADe Conference Proceedings / ISBN 978-9-4912070-1-3], University of Ljubljana, Faculty of Architecture (Slovenia) 21-24 September 2011, pp.819-828

Peer reviewed conference presentations

- 2015 Computer Human Interactions- Crossings, AMC, «Emergent Interfaces- Constructive Assembly of Identical Units» April 20th 2015
- 2015 Architectural Research Centers Consordium- Future of Architectural Research, Chicago, USA. 10. April 2015
- 2013 Design Modelling Symposium Berlin, A process where performance drives the physical design.
- 2013 eCAADe 2013, Delft, Physical Form Finding by Embedded Sensors
- 2009 Smart Geometry, Alumni Summit, San Francisco, USA. Invited to present the Master Project - Metro Mechanics. April 2009

Lectures

- 2015 Chair of CAAD, ETH Switzerland , Introducing a composite prediction Algorithm, with versatile scalability and flexibility. January 22nd 2015
- 2015 IAAC, Barcelona, January 8th 2015. «How to modify our build environment using sensors and computation»
- 2015 Chair of CAAD, ETH Switzerland, Non-determinate Building Processes using Principles from Artificial Intelligence, March 4th 2015
- 2014 CITA, Masters program, Propositional Architecture and Induced Representations, September 19th 2014
- 2013 Tangible Interaction Course at Applied IT department, Chalmers, Sweden.

Other presentations

- 2009 MetroMechanics - BE-Connected; Rail and Transit 2009, Online presentation, Invited to present the Master Project - Metro Mechanics.
- 2009 Bentley BIM conference in Vejle, Invited to present the Master Project - Metro Mechanics.
- 2009 Metro Mechanics – Copenhagen Metro and Arup, Principals and architects. Invited to the leadership group of the Copenhagen Metro to present the Master Project - Metro Mechanics.

Teaching Courses

- 2013 Tangible Interaction Course, Applied IT department, Chalmers. After introductory lectures from the tutors, the class of 24 students were divided in groups and assigned primary turtors for their projects, Co. tutor Alexandru Dancu. Ongoing annual course.
- 2013 Computation And Tooling ARK430, Chalmers Department of Architecture. A 10 week course on computers, cad, parametric software, 3d Scanning, programming, cnc machines. Focusing on integrating material models and drawings with digital design process.
- 2013 Computation in for Technical Architects ARK211, Chalmers Department of Architecture, second year bachelor students from the Architecture And Technology track, had as intensive two week course on CAD, Parametric Modelling, CNC machines, 3d scanning and programming.
- 2009-2012 Cita workshops mostly including students at master level.

Studio teaching

- 2012 Design studio »Lyckholm brewery«. Second year bachelor architecture students. A 2 month course on refurbishment of an old brewery in east Göteborg.

Opponent and critic

- 2013 MasterThesisSupervisor;JamesFord,AnnaEsbjörnsson, Patrik Magnusson. »Urban Timber - A holistic timber architecture in the city and a vision for mass costumization« Master Program Design for Systainable Developmentm, Dec 2013.

Participation in research projects

- 2010-2012 Prof. Mark Burry, SIAL, Velux guest professorship at CITA and KADK
- 2012-2017 *Architecture in the Making, Architecture as a Making Discipline and Material Practice* <http://architectureinthemaking.se/>

Work experience

- 2012 2xMarsvik Arkitekter, Lund, Sweden. *Christoffer Marsvik.*
- 2012 Lindköping University city- Vallastaden. Third place Competition.
- 2006-2009 COBE Architects (Student Associate), *Dan Stubbergård, Vanessa Miriam Carlow*
- Projects**
- 2009 Horsens Havn, Winner project, invited Competition.
- 2009 Nordhavnen, Winner project, Open competition.
- 2008 Oslo Central Station, second place, invited competition.
- 2006 Dæmningen i Vejle. Commision.
- 2006 Vejle Arena. Commission.
- 2005–2006 MVRDV (Internship), Rotterdam, *Prof. Ir. Ing Winy Maas*
- Projects**
- 2005 Newer Orleans Exhibition, following the flooding same year, commisionned exhibition.
- 2005 NY-Housing,