David Steeven Villa Salazar

Computer Science Master Student

PERSONAL PROFILE

I'm a mechatronic engineer from Metropolitan technological Institute (ITM) (Medellin, Colombia). I received my bachelor degree in 2016. My undergraduate research was developed in fields such as numerical methods, finite elements, mechatronics, robotics, computer vision and artificial intelligence. In 2014, I received the research merit award from Faculty of Engineering, ITM. In 2015 I was "young researcher" at the same institution, Developing a research in multi-focus image processing. Currently, I'm researching in Haptics and Human-Computer Interaction at Computer Graphics Group in the Informatics institute from the UFRGS in Porto Alegre, Brazil. I have interest in Haptics-Related areas such as psychophysics and tactile perception.

EDUCATION

MSc. in Computer Science | UFRGS

Universidade Federal do Rio Grande do Sul (Brazil)

Jan. 2017 - In progress

Thesis (Provisory Title): Integrating Physics-based and Data-Driven Methods to Accurately Model Haptic Textures

Adviser: Prof. Dr. Anderson Maciel

BSc. in Mechatronic Engineering | ITM

Instituto Tecnologico Metropolitano (Colombia)

Aug. 2010 - Dec 2016

Main Research: Computer Simulation of Heat Transfer on Tools Used in Friction Stir Welding

Adviser: Prof. Dr. Edwar A. Torres Lopez

RESEARCH INTEREST

Haptics

Texture Modeling & Rendering | Wearables | Mid-Air Haptics | Multi-sensory perception

Physical-Based Animation

Position-Based Dynamics | Smoothed Particles Hydrodinamics | Deformable Bodies

PARTICIPATION IN RESEARCH PROJECTS

Comparison of methodologies to get phase values in the optical field in lensless digital holographic microscopy

Universidad Nacional de Colombia | 2015 - 2016

Modeling and nonlinear control of fluids dynamics as from an experimental module
Instituto Tecnologico Metropolitano | 2014 - 2015

Fluid-Dynamic computational study of spiral chambers applied to micro-scale hydropower generation.
Instituto Tecnologico Metropolitano | 2014 - 2015

Computer simulation of heat transfer on tools used in friction stir welding
Instituto Tecnologico Metropolitano | 2013 - 2014

Development numerical correlations of heat transfer and pressure drop in twisted tube heat exchanger
Instituto Tecnologico Metropolitano | 2013 - 2014

PROFESSIONAL EXPERIENCE

Physical Interface Designer
PETROBRAS - Porto Alegre-Brazil
2017 - Present

Harware Prototyping | Human Factors | Design for Explosive Atmospheres

Cadd Designer & CFD Assistant
COINGAS - Itagui-Colombia
2015 - 2016

Simulation Planing | Numerical model implementation | Petroleum Simulations

UI Designer & Hardware Integrator
PITMMAM - Medellin-Colombia
2015

Hardware Prototyping | UI Planning | Interaction Design | Wireless Communication

Young Researcher
Instituto Tecnologico Metropolitano - Medellin-Colombia
2014 - 2015

Image Processing | Machine Learning | Research | Teaching

LANGUAGES

Spanish (Native)
Portuguese (Good)
English (Good)

TECHNICAL SKILLS

Programming Languages
C++
Python
Matlab
C#
Processing

Digital tools
OpenGL
OpenCV
3D Cadd Design
CFD Simulation
FEA Simulation
Multi-body Simulation

Physical tools
Arduino
Raspberry pi

BeagleBone
Microcontrollers

Circuit Design
Fast Prototyping

Haptic Devices

Geomagic Touch

Ultrahaptics

PUBLICATIONS

VILLA, D.; HINCAPIE, D. y TORRES, E. "Simulacion computacional de la transferencia de calor en herramientas usadas en soldadura por friccion-agitacion." Revista UIS Ingenierias (2015): vol. 14, no 2, p.p. 19-26.