

## **Vision**

How can the differences in man and machine guide development of machine perception to supplement mankind?

## **Objective**

Innovative thinker focused on computational cognition and machine perception for global advancement.

## **Presentations, Proceedings, and Papers**

StClair R. "Emergent Control in Hierarchical Effective Connectivity of Multimodal Processing Streams for Artificial Learning Systems in Simulated Higher-Cognition Experiments." Dissertation works.

Stclair R., Barenholtz E. "Minds and Machines" Florida Atlantic University. 2021 Spring; Boca Raton, FL. Graduate Teaching Assistant.

Stclair R., Hahn W. "Methods in Complex Systems" Florida Atlantic University. 2021 Spring; Boca Raton, FL. Graduate Teaching Assistant.

Shiba S., StClair R., et al. "Developing a Data Driven Algorithm for Detection of SARS-CoV-2 Infection in FAU Health Care Workers" Florida Atlantic University. 2021; Boca Raton, FL. College of Medicine Research and Scholarship Day Poster.

StClair R., Teti M., et al. "Autoimmune Antibody Binding Motif Prediction Model with LSTMs." Medical & Biological Eng & Computing.

Sachdeva, N., Klopukh, M., Clair, R.S. et al. Using conditional generative adversarial networks to reduce the effects of latency in robotic telesurgery. J Robotic Surg. Sep. 23, 2020. <https://doi.org/10.1007/s11701-020-01149-5>.

StClair R., "Computational Protein Analysis" Florida Atlantic University. 2020 July 07; Boca Raton, FL. Guest Lecture.

Morris P., StClair R., et al. "Predicting Binding from Screening Assays with Transformer Network Embeddings." Journal of Chemical Information and Modeling. Jun. 22, 2020. doi: <https://doi.org/10.1021/acs.jcim.9b01212>.

StClair R. "Translating Images with Generative Adversarial Networks" Data Science and Analytics Conference. 2019 Nov. 2; Boca Raton, FL. Workshop.

St.Clair R., Hahn W., et al. "Artificial Intelligence – What Does the Future (and Today) Hold?" Women Corporate Directors South Florida Chapter. 2019 Oct. 30; Boca Raton, FL. Panel discussion.

St.Clair R. "General Adversarial Networks: Brief History and Overview." Max Plank Academy. 2019 Oct. 15; Boca Raton, FL. Guest lecture.

StClair R. "General Adversarial Networks." Machine Perception and Cognitive Robotics Deep Learning Short Course. 2019 Aug 13-Aug 16; Boca Raton, FL. Workshop.

StClair R. "Post-Analytics: General Statistics from Your Model." Machine Perception and Cognitive Robotics Deep Learning Short Course. 2019 Aug 13- Aug 16; Boca Raton, FL. Lecture.

Morris P., StClair R., et al. "Virtual High-Throughput Screening; A Combined Deep-Learning Approach." American

Chemical Society National Conference. 2019 Mar 31- Apr 4; Orlando, FL. Lecture.

StClair R., et al. "Gold Particle Labeling with GANs" Max Plank Academy. 2019 Jan- May; Jupiter, FL. Workshop lead.

StClair R., Teti M., et al. "Self-Organizing Map Methodology for Sorting Differential Expression Data of MMP-9 Inhibition." 2019. biorxiv 586628; doi: <https://doi.org/10.1101/586628>.

StClair R., Dawson-Scully K., et al. "C.eVICHE: C.Elegan Visual Implementation of Computational Heuristic Experiments." Poster presented at: Max Plank Sunposium Conference; 2019 Mar 4-6; West Palm Beach, FL.

Teti M., StClair R., et al. "Target Binding and Sequence Prediction With LSTMs." 2018. bioRxiv 504415; doi: <https://doi.org/10.1101/504415>.

StClair R., Fields G., et al. *Self-Organizing Degradomics Model: SOMMMP9*. Poster presented at: University of Miami Neuroscience Day Conference; 2018 Dec 7; Miami, FL.

Teti M., StClair R., et al. *Deep learning sequence prediction for synthetic biology and genetic engineering*. Poster presented at: International Genetically Engineered Machine Competition; 2017 Nov; Boston, MA.

Gil M., StClair R., et al. *Temporal ontogeny of epileptogenesis in a model of adult-onset, spontaneous Seizures*. Poster presented at: FAU Undergraduate Research Symposium; 2017 Mar; Boca Raton, FL.

## Education

Florida Atlantic University Aug. 2018 - Fall 2021 Florida Atlantic University May 2013 - Dec. 2017 *PhD, Complex Systems and Brain Sciences Bachelors of Science degree, majoring in Biology*

## Experience

Machine Perception and Cognitive Robotics BrAIIn Team Development Spring 2021

- *develop methods in Unity3D and pytorch for biologically inspired artificial intelligence*

Department of Homeland Security PEPI-G Internship May 2019 - January 2020

- *Utilize Amazon Web Services and Created Report*
- *Cultivate prototype for two seperate computer vision problems*

Deep Learning Short Course Lead Organizer, Coordinator, and Instructor March 2019 - August 2019 • *Develope and carryout organization of course and logistics*

- *Lead instructor for generative adversarial networks lecture, training CNNs, Post-Analysis results*

MPFI Mentor January 2019 - May 2019 • *Computer vision project designer and execution management*

- *Mentor to two students in general programming and project development*

Machine Perception and Cognitive Robotics Lab May 2017 - Current • *Biomedical solutions using deep learning*

- *Innovative research team dedicated to machine perception and cognitive perceptions*

Alkermes Pharmaceutical Technician March 2017 - June 2017 • *Bulk Line 2 Manufacturing Associate*

Student Athlete Tutor October 2017 - Dec. 2018 • *Biology tutor at Florida Atlantic University for student athletics department*

- *Developing lesson plans and inspiring students to reach their full potentials*

OwlGems May 2017 – November 2017 • *Research team using synthetic biology to detect counterfeit antimalarial drugs*  
• *Team centered group that relies on self-disciplined individuals' cooperation*

Undergraduate Research Trainee Aug 2016 - May. 2017

- *Assist in data gathering, analysis, lab techniques (PCR, Gel Electrophoresis, solution make-up, etc.), • and lab animal care*
- *Train other undergraduate research trainees in data analysis and animal care*

Neurosurgery Shadow May 2015 - Aug 2015 • *Observed clinical and of ice task carried out by Dr. Eric Peterson*

Neurosurgery Floor Volunteer Aug 2014 - May 2015 • *Observed daily care in 7th floor neurosurgery at Boca Regional Hospital*

- *Took initiated to help Rn's whenever possible by organizing, cleaning, and anticipating needs*

## **Skills**

Python	Ubuntu/ Widows
Reinforcement Learning	Unity3D
Pytorch	Video and Text Processing
Tensorflow	Latex/Overleaf
Computer Vision techniques	Amazon Web Services (SageMaker)
Generative Adversarial Networks	Biologics Data
Arduino/Rasberry Pi	C++

## **Organizations**

Robotics Club @ FAU 2019-Current	Phi Delta Epsilon 2015-2016 Medical co-ed fraternity, marketing team member
Bioinformatics Club @ FAU 2017-2018	American Medical Student Association 2014 - 2015
American Medical Women's Association 2016-2018	

## **Links**

<https://www.justkittenaround.com>  
<https://www.youtube.com/channel/UC6qDeEUGHclOmcUQOFodnkW>  
<https://www.linkedin.com/in/rachelailleenstclair/>

## **References**

Available upon request.