**ANDONIS MITIDIS (senior data scientist)**

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**EMPLOYMENT: Walmart – Senior Data Scientist (06/2019 – present)**

* Lead and develop machine learning solutions

**Capstone IT, Inc** – Senior Data Scientist **(06/2018 – 05/2019)**

* Leading a team of 3 data scientists for developing machine learning solutions
* Talking to clients to understand business problems qualitatively and quantitatively
* Provide new solutions and optimize existing solutions using machine learning

**J.B.Hunt Transport, Inc –** Senior Data Scientist **(06/2017 - 06/2018)**

* Leading a team of 5 data scientists for developing machine learning solutions
* Understanding business strategies and translating them to mathematical problems
* Improving business solutions through automation using machine learning
* Increased revenue in a business sector by making processes more efficient

**Aptima, Inc –** Data Scientist **(06/2016 - 06/2017)**

* Implementing machine learning solutions to problems given by project managers
* Writing proposals to compete on projects published by the SBIR.gov program
* Consultation to the US and Australian army for training of military personnel

**En2uition, LLC –** Founder and managing director, data scientist **(05/2013 - present)**

* Conceiving and implementing a business idea to automate counseling
* Managing a team of 5 developers, 3 psychologists and 1 data scientist

**University of Florida -** PhysicsGrant award by NSF **(08/2009 – 12/2015)**

* PhD candidate, use machine learning for the detection of gravitational waves
* Published four papers on scientific peer-reviewed journals on gravity waves

**Adjunct Instructor**, Mathematics - Santa Fe College **(06/2006 - 01/2010)**

* Preparing course syllabi and material for lecturing undergraduate mathematics
* Participating in college organization and administration, preparing final exams

**Teaching assistant**, Mathematics, Physics - University of Florida **(01/2006 – 08/2010)**

* Teaching mathematics undergraduate courses and organize group studies

**Tallahassee Community College,** Astronomy instructor **(08/2003 – 12/2005)**

* Preparing and lecturing astronomy courses to audiences up to 100 students

**Private tutor**, Mathematics, Physics **(01/2002 – 06/2003)**

* Teaching mathematics and physics to students with special learning needs

**Florida State University,** Astronomy Instructor **(10/2000 – 12/2001)**

* Teaching astronomy (indoors and outdoors) lab to large group of students

**EDUCATION: University of Florida,** Gainesville, Florida, U.S.A **(08/2009 - 12/2015)**

Physics PhD, theoretical gravitation and data analysis - member of LIGO

**University of Florida,** Gainesville, Florida, U.S.A **(08/2007 - 08/2009)**

Physics MSc, classical and quantum physics

**University of Florida,** Gainesville, Florida, U.S.A **(01/2005 - 08/2007)**

Mathematics MSc, pure mathematics

**University of London - Imperial College,** United Kingdom **(09/1999 - 10/2000)**

Master of Science, Quantum fields and Fundamental Forces

**University of Bristol, Bristol, United Kingdom (09/1996 - 09/1999)**

Bachelor of Science, Physics (First Class Honors - Top of Class)

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**Acropolis Lyceum,** **Nicosia, Cyprus (09/1991 - 06/1994)**

Science section (Grade 90%) - Class President (1994)

**PUBLICATIONS: PRD.** “Machine learning algorithms for the Stochastic Transient Analysis Multi-detector

pipeline: sensitivity study on r-mode gravitational waves from newborn neutron stars”

**APJ.** "Search for gravitomagnetic waves due to mass currents on newborn neutron stars:

constraining the EOS of neutron star matter and the r-mode saturation amplitude"

**PRD.** “Long gravitational-wave transients and associated detection strategies for a network

of terrestrial interferometers”

**PRD,** “Characterizing machine learning’s capabilities to detect long transient gravitational

waves from isolated neutron stars in a real search”

**PATENTS**: Attorney Docket No. APTI1704PP; the application was filed on November 9th, 2017 and it

was assigned application No. 62/583,810

**AWARDS: Outstanding Accomplishment, Aptima (09/2016),** recognition of the extra contributions

I have made to the company, “going above and beyond” the expectations for my job position

**Special Breakthrough Prize in Fundamental Physics, LIGO (02/2016), ‘**recognizing scientists

and engineers contributing to the momentous detection of gravitational waves’ ($3 million prize

shared between LIGO founders and 1012 contributors to the discovery)

**Research Assistantship,** NSF - LIGO grant at the University of Florida **(08/2009 - 12/2015)**

**Scholarships,** Leventis Foundation, Cyprus Institution of Scholarships **(2000 - 2003)**

**Academic awards,** Final year dissertation **(1999),** Overall performance **(1998)**, Outstanding

success in final exams **(1997)**

**EXPERIENCE: Consulting –** Interact with business executives to understand, formulate and solve problems

**Web development –** Web Development manager for en2uition LLC **(05/2013 - present)**

**Data Analysis -** Application of machine learning techniques for LIGO

**LIGO -** Participated in conferences around the US and Europe **(2009 - 2014)**

**National Guard, Cyprus -** Officer **(1994 - 1996)**

**PROGRAMMING:** Python, (scikit-learn, tensorflow, pytorch pyjags), artificial neural networks, deep neural networks

(CNN, RNN, LSTM, TCNN) support vector machines, subspace classifiers, hidden Markov models,

Markov decision processes, Bayesian networks, probabilistic graphical models, Natural language

processing (LDA), Statistical modeling, Mathematics, Data processing, Data Visualization, Consulting

**AI EXPERIENCE:**

1. **Vision – Object Recognition, Image Classification (Capstone IT, Omaha, NE)**:

This project consisted of several tasks that were performed using convolution neural networks developed on tensorflow. The objective here was to have cameras around a construction workplace that would provide image data streams to a server that would then feed those images to our vision algorithms. The objective of this project is to automate/provide assistance in supervision.

1. **Detection of gravitational waves – LIGO (University of Florida, Gainesville, FL)**:

This project involved the training of three binary classifiers (support vector machines, artificial neural networks, subspace classifiers). For the training we simulated about 10000 signal data and 10000 noise data. Using these two classes of data we trained all three binary classifiers to recognize when a signal was present (or not) in the time series of data collected by the LIGO detectors.

1. **Training of military personel (Aptima, Inc - Washington DC)**:

Reinforcement learning. Solving Bellman equations. Training of people involves

presenting them a set of exercises in a given sequence. Determining the sequence

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of these exercises depends on the level of expertise of the trainee at each given

stage of the training process. Solving Bellman’s equations allowed us to derive

the policy that we used to determine what exercise to give to the trainee at each

given stage of the training.

1. **Satellite maneuver prediction (Aptima, Inc** **– Washington DC):**

Support vector machine (SVM). Given a set of orbit data from several satellites we trained the SVM to identify the presence of patterns prior to a maneuver that helped us predict those maneuvers. This project is analogous to the time series prediction problem e.g. predict the stock market price movement. You try to predict whether the price will go up or down. Similarly, with satellites we tried to predict whether the satellites would maneuver or not. (Note: maneuver is a change in the smooth orbital motion of the satellite)

1. **Inpatient treatment path pattern recognition (Aptima Inc – Washington DC**):

We used a 2-dimensional version of the Latent Dirichlet Allocation (LDA) algorithm. Given historical inpatient data (for a given disease) we extracted patterns in inpatient treatment paths that allowed us to predict three qualitative behaviors of the treatments: expensive versus cheap, fast versus slow treatments, positive versus negative outcomes.

1. **Price prediction (J.B.Hunt Transport, Inc – Lowel, Arkansas):**

Multidimensional regression analysis to find what factors affect transportation pricing. We used historical data to do regression analysis that allowed us to automate the pricing process. We also derived a method to optimize the prices so that we can increase the likelihood of shippers to pay for/accept the contract for the given transfer.

1. **Clustering of relationship data (en2uition LLC):**

We used clustering algorithms to cluster relationship data into similarity groups. These groups allow us to categorize a given relationship to one of the given relationship types/patterns we extracted. Depending on the relationship types each user belongs to, they will be guided through a series of counselling steps. Each relationship data was converted to a sequence of zeros and ones. The clustering was performed in a similar fashion the biologists are performing DNA sequence clustering.

1. **Time Series Predictions (J.B.Hunt Transport, Inc – Lowel, Arkansas):**

We used historical pricing data of 7 ‘predictor/power transportation lanes’ and convert that to equally spaced time series. We used recurrent (deep) neural networks in the form of Long Short-Term Memory (LSTM) algorithms and Temporal Convolutional neural networks (TCNN) in order to make predictions of future prices on those 7 power lanes. The objective of the project was to use Bayesian inference and make predictions on prices of other lanes based on the predictions we make on the 7 power lanes.