






ERIC ZACHARIA

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CURRENT POSITION	Data Analytics Master's Student Department of Computer Science, University of Chicago	September, 2020 – present
EDUCATION	M.S. in Computer Science , University of Chicago B.S. in Aerospace Engineering , Syracuse University	December, 2021 2016
PUBLICATION	Eric Zacharia, Melissa Green, <i>Hydrodynamics of Dolphin Caudal Fins</i> , 2016 (available here)	
SKILLS	Python, PyTorch, TensorFlow, Keras, Pandas, NumPy, SciPy, Scikit Learn, matplotlib, Jupyter, SQL, Golang, HTML5, CSS3, MATLAB, L^AT_EX , Excel, Git, Windows, MacOS	
PROJECT EXPERIENCE	Machine Learning Methods <ul style="list-style-type: none">❁ Convolutional Neural Network with Xavier initialization and forward and backward propagation of matrix multiplication and addition, matrix cross product, sigmoid, ReLU, convolution, max pooling, flattening, and SoftMax❁ Gradient descent with learning rate and regularization parameters❁ Cross validation for a classification algorithm❁ Scoring ordinal regression function with a quadratic weighted kappa❁ Decision Tree Classifier with multiway splitting on continuous attributes and information entropy, generalization error, and pruning methods	present
	Algorithms <ul style="list-style-type: none">❁ Graph Algorithms – BST, AVL Tree, Binary Min Heap, BFS, DFS, Dijkstra, Bellman-Ford, DAG shortest path, MST Prim, MST Kruskal, Max Flow Ford-Fulkerson❁ Sorting Algorithms – Heapsort, Quicksort, Mergesort, Insertion Sort❁ Data Structures – Coarse grained locking concurrent linked list, concurrent stack, concurrent queue, open addressing hash table, LRU cache❁ Dynamic Programming – LCS, LIS, Edit Distance, Knapsack, Coin Change, Word Break, Rod Cutting, Optimal Tree Placement, etc.	2021
	Slack Clone <ul style="list-style-type: none">❁ A single-page web application written with asynchronous JavaScript and Flask❁ Create account using an email and a password that is encrypted and hashed❁ Includes features like “forgot password”, change username, change password, create new messaging channel, and reply to messages thread❁ User info, channels, and messages are stored in database using SQL	2021
	Twitter Feed Clone <ul style="list-style-type: none">❁ Handles adding and removing “tweets” to a coarse grained concurrent linked-list feed using a bounded concurrent queue lock implementation❁ Talks to a server by decoding and encoding JSON files from strings	2021

Other Projects

Pinterest Clone	Content Management System	Speaker Recognition System
Jack Programming Compiler	Blob Video Game	VM to Assembly Translator
Text Completion Software	Stock API Graph Generator	Authorship Text Verification
Roman Numeral Converter	Caesar Cypher File Encryptor	1 st Place Model Aircraft Flight

WORK EXPERIENCE

Aerospace Stress Engineer, Spirit AeroSystems Inc. 2016-2020

- ✕ Worked on teams that designed, built, analyzed, and tested aerospace structures for The Department of Defense, Boeing's 787 Dreamliner, and Boeing's 777X; gained promotion to Level II Stress Engineer within 18 months
- ✕ Applied knowledge of MATLAB, Excel, linear algebra, ABD matrices, statics, dynamics, fatigue, damage tolerance, crack growth, Finite Element Analysis, Computer-Aided-Design, and properties of aluminum and composite materials

Host of Glacier's Bed and Breakfast 2018-2020

- 🏠 Hosted guests in my 3-bedroom home with over 80 bookings
- 🏠 Classified as a "Super Host" by Airbnb for sustaining a 5-star rating over two years

Fluid Dynamics Researcher, Syracuse University 2015-2016

- ✕ Studied the propulsive aspects of dolphin tails and experimented with 3D-printed dolphin caudal fins that mimicked swimming motion inside a water tunnel
 - ✕ Synthesized knowledge of MATLAB, Excel, SolidWorks (CAD), 3D printing, Arduino, laser-induced fluorescence, HD videography, fluid dynamics, and circuits
 - ✕ Used fluorescent dye and planar-shaped lasers to highlight trailing-edge vortices
 - ✕ Constructed 3D vortex visualizations in MATLAB using pixel data from the HD recordings of the 2D vortex sheets by stacking and interpolating between points
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CERTIFICATIONS

Secret Government Security Clearance	2020
Private Pilot	2019
Open Water Scuba Diver	2016

Last updated : 05/18/2021