KYLE J. HOSTETTER (TS SCI w/ CI Poly)

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Key Competencies:

Data Science, AI/ML, Statistical Analysis, Algorithm Development and Optimization, Creating Custom Visualizations, Cloud Computing, SW Engineering, Scripting, Data Engineering, Database Architecture and Management, Designing and Building Network Architecture, Systems Engineering, Systems Administration

Industry Domains: NGA, GEOINT, IT, Financial Industry, Health Industry, Hospitality Industry

Disciplines, Highlights, and Tech Stack (Hands-On, High Proficiency)

Cloud Computing (AWS):	EC2, VPCs, SQS, Route 53, Glue, RDS, SQS
Data Science:	Python, PyTorch, Pandas, build statistical models, build data pipelines, recognize data patterns, create custom scripts, NLTK and Sentiment Analysis, Advana, Qlik, Databricks, VBA, NUMBA, REGEX ▶ completed 30+ case studies with in-depth analysis and advanced data science techniques
AI/ML	▶ ML algorithms (Random Forest, K-Neighbors, Logistic Regression, etc.) ▶ Hyper-tuning parameters that optimize model performance ▶ Built ML models to read through customer surveys using PySpark inside DataBricks ▶ Used ML classification methods to predict neighborhood, village, and town names through longitude and latitude values ▶ Utilized GeoPy to encode longitude and latitude values to gather more geospatial data ▶ Used the Keras API to build and architect a custom CNN model to classify different levels of Alzheimer's within patients ▶ Created a CNN binary classifier to predict if patients' lung X-rays show signs of Pneumonia ▶ Designed and implemented large-scale machine learning and deep learning algorithms to solve real-world problems.
Statistical Methods/Analysis:	Probability Distributions, Histograms, Bar Charts, Regression, AUC, ROC, F1, Accuracy, Recall etc.
Creating Custom Visualizations:	Tableau, Plotly, Matplotlib and Seaborn libraries
SW Engineering & Scripting:	Python, C #, C++, HTML, CSS, JavaScript, R, MQL4, MQL5, and PowerShell
DevOps:	Git, JIRA, Confluence, React framework
Databases:	Architecting, Administering, and Data Management: Oracle, RDS, SQL, MYSQL, NoSQL, PostgreSQL, Microsoft SQL Server, MariaDB, SPLUNK
Environments	UNIX, LINUX, Windows, AWS

Education and Certifications

▶Security+ Certification	CompTIA	Jun 2022
▶Micro Masters in Statistics & Data Science	Massachusetts Institute of Technology	Dec 2024
▶Certificate in Applied Data Science & Statistics	Massachusetts Institute of Technology	Apr 2023
▶Bachelor of Science in Chemistry	McKendree University – Lebanon, IL	May 2020

- Used computation machine learning and the development of multi-dimensional algorithms for structure architecture.
- Researched explosive material for optimal performance and theoretical stability.
- Developed chemical structures for biochemical processes including exothermic explosive bonding.
- Studied quantum mechanics to better produce models of prediction capabilities associated with atomic interactions.
- Minors in: Mathematics ♦Business Administration ♦Cybersecurity Program Manager

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Relevant Full-Time Work Experience (7 years, 1 month)

Systems Engineer | **Metric 5 at NGA** | **Arnold, MO** | **December 2023 - Present**

- Using Cloud Instances to host and maintain websites:
  - Creating and maintaining AWS Ec2 instances.
  - Maintaining network security with AWS VPCs and Security Groups to ensure safe traffic.
  - Patching and assessing security vulnerabilities inside Windows and Linux environments.
  - Creating custom AMIs for server management and easier configurations for servers.
- Administration of website users:
  - Using Active Directory to update user information and make necessary changes to user experience.
  - Setting website permissions for multiple IC agency users and control page access for all other users.
  - Troubleshooting service tickets with users to fix website bugs and user technical issues.
  - Writing PowerShell to automate tasks for faster and more accurate admin implementations.
- Using a variety of Cloud Storage capabilities:
  - Using RDS and relational MySQL databases to hold customer records.
  - Updating and maintaining MySQL relational databases using MySQL language or custom API.
- Gathering metrics for website traffic:
  - Using Matomo and other software to gather traffic information on current websites.
  - Building statistical information to optimize UI design for better website usage.
- Implementing code changes to update website needs:
  - Working with DevOps teams to write new code to implement bug fixes and website updates.
  - Writing JavaScript code for bug fixes and using the React framework to implement JavaScript code.
  - Utilizing JIRA to keep track of bugs and implement code fixes.

Program Manager (SETA) | **S2 Analytics at NGA** | **Arnold, MO** | **August 2023 - December 2023**

- Managing multiple weekly collaborations:
  - Using Microsoft Teams as a collaboration environment, I host weekly meetings for project status updates with key stakeholders.
  - Creating project flows with Microsoft project.
  - Using Agile workflow for completing multiple project tasks at an ongoing pace.
  - Updating all necessary project events with Microsoft Office Suite.
- Architecting databases and data solutions for NGA:
  - Working with multiple data teams to create a project workflow that implements necessary IC agency enhancements.
  - Writing SQL inside MySQL relational databases to retrieve necessary agency information for customers.
  - Architecting MySQL relational databases for improved data retrieval and efficiency.
  - Setting up AWS SQS to notify system status to team.
- Providing System Engineering Technical Assistance (SETA):
  - Processing and implementing system requirement requests for server management.
  - Providing technical insights for AWS architecture designs throughout projects.
  - Working with DevOps teams to implement and create efficient solutions for IC agency programs.

Data Scientist | **Charter Spectrum** | **Maryland Heights, MO** | **August 2022 - August 2023**

- Implementing Data Engineering:
  - Utilizing Pandas library for creating, cleansing, and building new data frames.
  - Relying on statistical methods to build statistical models that can better normalize customer behavior patterns.
  - Writing custom SQL code to build data engineering pipelines for specific data requirements.

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- Creating custom queries with SPL (Search Processing Language) inside Splunk for large transactional data retrieval.
- Understanding and implementing REGEX into data-gathering efforts for specific custom information.

• Optimizing UI/UX design:
- Implementing UI configuration using QUANTUM tagging to gather click traffic on customer service website tools.
- Being the PO (Product Owner) for the QUANTUM tagging efforts, I am implementing new strategies like statical modeling and UI priority design to increase ease of use.
- Creating visualizations with Tableau that show case-specific information for each tool within our website.

• Working with different databases:
- Utilizing Oracle for customer information.
- Working with Microsoft SQL Server to gather information and join tables from Splunk queries.
- Coding with SPL and using REGEX to gather transactional information from the Splunk Servers.

• Creating Visualizations:
- Writing custom visualizations that show care-specific customer statistics with the Plotly library.
- Working with Seaborn and Matplotlib libraries to provide static and quick distribution visualizations for directors and VPs.
- Creating custom Splunk dashboards to gather quick customer insight information for users.
- Visualizing large CSVs and connecting multiple databases to create Tableau dashboards.

• Applying Statistics, ML, and DL:
- Working with the PyTorch library to create efficient and highly customizable DL models.
- Using ML algorithms (Random Forest, K-Neighbors, Logistic Regression, etc.) to classify reasons why customers are calling in.
- Prioritizing fast and efficient code with the NUMBA library to create custom mathematical functions for hyper-tuning.
- Using GridSearchCV within the Scikit-Learn library to gather hyper-tuning parameters that optimize model performance.

Data Scientist | **UnComn** | **Scott Air Force Base, IL** | **April 2020 - August 2022**

• Leading & Building an Automation Team:
- Creating custom software with VBA to automate PowerPoint slide-building tasks for the whole company.
- Writing custom Python code with the PPTX library to create visualizations and tables from integrated Excel spreadsheets.
- Saving over $100,000+ through the slide and Excel automation efforts.

• Working with Security DevOps:
- Troubleshooting and engineering security solutions for high-priority security vulnerabilities.
- Reading through thousands of logs to find application issues within authentication-specific tasks.
- Designing and configuring a centralized logging system for security logging in multiple applications inside an AWS cloud environment.

• NLTK and Sentiment Analysis:
- Engineering a sentiment analysis tool to read through customer surveys.
- Using PySpark inside DataBricks to build ML models to read through customer surveys.
- Working with the NLTK library to implement sentiment analysis for customer reviews.
- Creating a scoring and polarity system to show how negative or positive words and sentences are.

• Developing in different Platforms:
- Working inside the Linux environment to develop and design problem-solving solutions.
- Designing and architecting systems within the AWS environment to build a centralized logging server.
- Utilizing Qlik inside the Advana platform to create dynamic custom visualizations for data.
- Working inside DataBricks to build data engineering pipelines and ML models within the cloud.

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- Data Architecting database configurations:
  - Implementing common practices to build out databases and optimize table coupling.
  - Working with Microsoft Access databases to create custom forms and data-gathering tools.
  - Querying both non-relational and relational databases to build out new data pipelines.
- Earned Employee of the Month

System Engineer	Trident Technologies	Scott AFB, IL	May 2019 - March 2020

- Updating and Designing Data Systems:
  - Working with AWS Glue to provide multiple data source integrations.
  - Using the Teradata software to create new architectures for data storage.
  - Building and maintaining a data dictionary for multiple database configurations.
- Providing Data Analytics:
  - Using Python to create data analytics that gives better insight into how TRANSCOM prioritizes its data streams.
  - Using data cleansing techniques to engineer pipelines for further data science efforts.
  - Working with Excel to build out VBA functions for data automation efforts.
  - Building PowerPoint slides for dynamically changing data to present to key stakeholders.
  - Data Architecting database tables to build an efficient, optimized database.
- Creating a collaborative environment:
  - Holding weekly meetings to promote team efforts.
  - Utilizing the Waterfall method to build workflows and prioritize team tasks.
  - Working with Microsoft Office Suite to build documentation and update project specifications.

Magical Express Specialist	Walt Disney World	Orlando, FL	August 2018 - December 2018

- Managed a large database for thousands of guests
  - Maintained API calls for optimal baggage retrieval.
  - Created VBA functions for the automation of guest data.
- Solved hotel guest issues and operated high-level company equipment.

Customer Sales Associate	Men's Wearhouse	Fairview Heights, IL	Apr 2016 - Jan 2018

- Maintained an Oracle multi-layered relational database of detailed customer information for purchase history and event planning.
  - Using Oracle relational databases as a foundation for data management.
  - Creating custom data input forms for faster data retrieval.
  - Updated records using custom-created forms and Oracle language syntax.
- Employed knowledge of statistical methods and geometric analysis to provide the optimal product for each customer.
- Partnered with employees and managers to plan, develop, and implement unique strategies to increase sales.

Relevant Part-Time Overlapping Work Experience

Software & ML Engineer	Freelance (20 hrs./week)	Remote	December 2016 - Present

Using multiple programming languages for algorithmic trading designs:

- Writing MQL4 and MQL5 inside the MetaTrader platform to implement trades.
- Writing Python to input trading information into Oanda API

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- Using C++ for fast trading implementations for high forex volatility patterns.
- Creating bash scripts to system checks for custom Linux trading servers.
- Using R for statistical modeling and probability distributions of market trades.

• Creating custom data streams and pipelines:
- Using the Beautiful Soup library with Python to web scrape important trading information.
- Implementing NLTK library for sentiment analysis to categorize financial articles.
- Creating custom APIs to retrieve Forex market-related information to use in financial trading algorithms.
- Building custom JSON for price data for specific commodities from (Yahoo, TD Ameritrade, Google, etc.)

• Configuring Data Engineering Parameters:
- Writing code using Python and Pandas library to create multi-dimensional data frames.
- Using statistical methods (mean, mode, range, max, min, etc..) with the NUMPY library in Python to normalize data price values.
- Implementing Feature Engineering to create new important parameters to input into trading algorithms.
- Automating proper EDA (Exploratory Data Analysis) to fill NULL values and Scikit-Learn ML algorithms (Random Forest, Ridge Regression, etc.) to fill NULL information.
- Using PCA (Principal Component Analysis) to give ranges of extreme price volatility scores for Forex pairs.

• Using DL and ML in financial algorithms:
- Using the Keras API library with Python to build DL models and implement ANN and LSTM architectures.
- Utilizing the TensorFlow library for more custom and complex DL architectures.
- Optimizing DL models with Keras Hyperband, Keras Tuner, Tensorboard, and custom functions.
- Creating custom architectures with PyTorch for DL solutions that require a more customized approach.
- For ML hyper-tuning I utilize custom functions and GridSearchCV within the Scikit-Learn library
- Implementing retraining cycles for production models to keep up-to-date algorithms and more accurate models.
- Utilizing Nvidia GPU, CUDA, and software inside Linux environments to train models rapidly.
- Optimizing ML tasks with the RAPIDS library to utilize GPU performance for the most common ML algorithms.

• Engineering and Managing trading systems:
- Running Ubuntu as Linux servers with AWS Ec2 systems for cost-effective, high-performing trading computers.
- Patching and reconfiguring custom code to decrease security vulnerabilities.
- Using Loosely coupled containers with Docker to implement customer-specific trading strategies prioritizing faster reboot times.
- Setting up SQS for email notifications for account information insights.
- Using No-SQL non-relational database architecture for custom trading data.

• Creating Custom Visualizations:
- Using Tableau for creating quick and fast visualizations that do not require a lot of custom configuring.
- Coding custom visualizations with the Plotly library, to give multi-plot interactive metrics that can be easily shown.
- Developing static visualizations for statistical methods (probability distributions, histograms, bar charts, regression, etc.) with the Matplotlib and Seaborn libraries.

Chief Technology Officer | **Gill Heating & Cooling (part time)** | **Troy, IL** | **August 2019 - Present**

• Designing and Building Network Architecture:
- Using CAT-6 cabling to run networking throughout Company infrastructure.
- Modeling network performance and architecture for infrastructure constraints.
- Installing and configuring Ubiquiti servers for security implementations.
- Setting up deterrents and visually recording security systems to decrease security vulnerabilities.

• Engineering and Developing Website:

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- Writing custom code with HTML, CSS, and JavaScript to build an optimal-performing website.
- Using Python and Django for efficient dynamic changing performance for the website.
- Configuring AWS Ec2 instances with Route 53 for designated site traffic.
- Meta-tagging specific website features for analytical purposes.
    - Creating and maintaining Linux servers to host website files.
- Writing custom bash scripts to provide server status information.
- Using AWS Batches to quickly train large data traffic models.

• Optimizing Website Performance:

- Using the Scikit-Learn library for ML algorithms to predict website traffic usage.
- Prioritizing statistical methods and meta-tagging for website analytics.
- Writing custom software tools with Python for job situations.
- Performing weekly data insights with key stakeholders to prioritize website and company performance.
- Creating custom visualizations with the Plotly library to give interactive data analysis charts.
- Maintaining a PostgreSQL relational database with customer traffic and company analytical information.

Customer Sales Agent	**Geek Squad (25 hours per week)**	**May 2018 - September 2019**

• Using high-technical techniques to solve problems:

- Working with soldering equipment to fix motherboard electrical issues.
- Building and designing optimal computers and servers to fit customer needs.
- Restoring servers and personal devices to factory settings for resale.
- Thoroughly testing devices for certified resale.
- Designing and implementing network configurations that are optimized for current customer infrastructure.
- Becoming an Apple-certified technician to perform device fixes on Apple products.
- Maintaining a large record database of customer information.
- Solving A+ hardware issues for customers' equipment.
- Retrieving almost destroyed data hardware back to its original configuration.

• Navigating High-Stress Situations:

- Working with key stakeholders and customers to design a plan of attack for hardware issues.
- Maintaining a calm environment when troubleshooting high-priority personal devices.
- Being able to talk through complex technical fixes in a simplified way.
- Implementing multi-tasking strategies to fix and solve multiple customer issues at the same time.

• Using Consumer Behavior efforts to optimize sales:

- Building statistical charts to show customer priority traffic.
- Implementing statistical methods to predict wait times for customer device resolutions.
- Utilizing company packages to further improve customer satisfaction.

Additional/Non-Relevant Full-Time Work Experience

Personal Caregiver	**Cedarhurst**	**Edwardsville, IL**	**Aug 2015 - Jan 2017**

- Employed knowledge of the human body to make appropriate medical decisions for patients.
- Handled high-stress situations and human lives to ensure healthy patients.
- Implemented quick thinking and strong decision-making to ensure the safety and care of the patients.
- Maintained accurate records of patient care, condition, progress, and concerns.

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Personal AI/ML and Data Science Projects – Kyle's Website

Alzheimer's Classification May 2024

- Using the Keras API to build and architect a custom CNN model to classify different levels of Alzheimer's within patients.
- Creating custom visualizations with Plotly to show the CNN model's performance throughout the training process.
- Relying on statistical metrics (AUC, ROC, F1, Accuracy, Recall, etc.) to provide model insights for best classification performance.
- Utilizing hyper-parameter tuning for callbacks, learning rates, hidden layer depths, and loss functions for the DL network.
- Show model performance with the Matplotlib library.

St. Louis Crime Analysis May 2024

- Creating custom visualization with the Plotly library.
- Automating all visualizations for nested web pages through Python functions.
- Using ML classification methods to predict neighborhood, village, and town names through longitude and latitude values.
- Writing custom HTML, CSS, and JavaScript for web pages to present information.
- Cleansing data through statistical methods with the Pandas library.
- Utilizing GeoPy to encode longitude and latitude values to gather more geospatial data.

Pneumonia Identifier November 2024

- Creating a CNN binary classifier to predict if patients' lung X-rays show signs of having Pneumonia.
- Building CNN model with Keras API with Early Stopping utilization to create a more efficient program.
- Engineering custom Precision & Recall and Threshold graphs for further model analysis.
- Implementing the Matplotlib library to show the classifications of test data.

Heart Failure Classification June 2023

- Using multiple ML algorithms within the SciKit-Learn library to predict heart failure probability in individuals
- Performing multi-algorithm analysis to find the best algorithm for this type of dataset.
- Hyper-turning multiple ML algorithms with GridSearchCV for the best fit.
- Creating custom visualizations with Seaborn to perform proper EDA (Exploratory Data Analysis).
- Building DL ANN models with TensorFlow using the Sequential API with over 95% validation accuracy.

Used Car Price Regressor May 2023

- Performing EDA analysis for feature engineering efforts.
- Comparing multiple ML algorithms to find the best-performing model for use.
- Hyper-tuning multiple ML algorithms for the best-performing parameters to be implemented in the final model.
- Creating visualizations with Seaborn and Matplotlib.

Key Accomplishments

- **Top 1% of Online Hackers:** TryHackMe.com
- **Algorithmic Trading Performance:** 1,250% profit in 4 months