BUNPHENG CHHAY

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Education

Master of Science in Software Engineering, Data Science Specialization, San Jose State University	Exp. May 2025
Bachelor of Science in Computer Science, Minor in Statistics, Sacramento State University	May 2023

CERTIFICATE

AWS Certified Cloud Practitioner, Amazon Web Services: MEMWP59DP2V4Q4C8	July 2022

SKILLS

Languages & Tech Stack:	Java, JavaScript, Python, R, CSS, Figma, HTML, Node.js, React, Express, MERN Stack
Database:	MongoDB, MySQL
Data Science:	Pytorch, MatplotLib, Numpy, Pandas, Scikit-learn, Transformer
AWS:	EC2, Lambda, S3, Amplify, Connect, Lex, Cognito, IAM, Polly, Rekognition, Sage Maker, Step Function, CF, API gateway

EXPERIENCES

Internship: Associate Solution Architect | Amazon Web Services (AWS), Seattle WA | May 2022 – Aug 2022
- Managed, developed, and deployed two applications. **Conversational Chatbot:** Developed solutions using Amazon Lex and Connect to enhance customer support and **Describe for Me App**: serverless application model for visually impaired people and showcased at **AWS re:Invent 2022**
- Successfully identified business issues and developed POC solutions with two AWS reference architectures, and demo two working prototypes
- Successfully adhered to AWS Well-Architected including security, availability, reliability, operation, performance, and cost optimization
- Designed and built an event driven distributed system for AI/ML workflow using AWS Step Functions and AWS managed AI/ML Services
- Built and deployed realtime output backend solutions with API Gateway, AWS Lambda, and AWS IAM for HTTPs API
- Built cloud storage solutions with AWS S3 for user input/data storage, AI/ML output, and to process event notification to AWS Lambda
- Built and deployed a front-end app with Amplify, JavaScript, React, HTML, CSS, Cognito, and Google Auth API to showcase prototypes
- Created Python-based coding solutions leveraging AWS Managed AI/ML services: Rekognition and Polly for Image recognition and text to speech
- Deployed Fullstack app with AWS Amplify and established a CI/CD pipeline using Amplify, AWS SDK, and AWS code commit.
- Engineered logic for conversational chatbots and call bots, addressing customer requirements using Amazon Connect, Lex, and AWS Lambda
- Conducted functional testing, prepared reports, and offered a comprehensive plan for enhancing the internal meeting app
- Collaborated with senior team members to research on Hugging Face Models using SageMaker realtime inference
- Assisted the manager in researching solutions and delivering reports to customers on data migration and CI/CD pipeline implementation

Assistant Manager | TLBU Foundation, Atlantic City, New Jersey | May 2017 – Aug 2019
- Liaised between President, VP, and Executive manager over multiple projects including high school project, property, and hotel management
- Developing and executing scalable business plans for high school and hotel including market strategy, customer relations, legal, IT and HR.
- Co-leaded in property acquisition, established internal organization structure for high school project, managed cash flow and budgeting

SCHOOL PROJECTS

Facial Emotion Recognition, Course: Deep Learning, San Jose State | Sept 2023 – Dec 2023
- Utilized Vision Transformer and Pytorch for fine-tuning tasks in Facial Expression Recognition using the RAFDB dataset achieved 86% accuracy
- Applied transfer learning techniques to improve accuracy and expedite development by fine-tuning and comparing various models, including VGG, ResNet, and ViT. Conducted data preprocessing to ensured that custom labels and image paths were organized and ready for loading
- Adapted the model by modifying the output layer to accommodate the seven classes of facial expression classification and implemented data augmentation techniques, including flips, crops, color adjustments, and rotations. Added checkpoint for reproducibility and efficiency
- Fine-tuned hyperparameters, incorporated adjustment of the learning rate, cross-entropy loss, early stopping for optimal model performance
- Enhanced the training process by incorporating val loss, accuracy, and train loss into a progress bar, and generated classification report
- Developed a Colab Notebook that demonstrated the entire workflow, from data loading to training, testing, and inference, and live demo

Face Mask Detection, Course: Data Mining, San Jose State | October 2023 – Dec 2023
- Implemented a Convolutional Neural Network (CNN) model architecture on the Face Mask dataset obtained from Kaggle, achieving accuracy rate of 92%. Additionally, conducted a comparative analysis of accuracy with other models such as SVM, K-means, and Random Forest
- Organized the dataset into distinct test, train, and validation subsets to facilitate robust model evaluation
- Incorporated TensorFlow's EarlyStopping callback with a patience of 3 epochs to counteract overfitting

Text Classification, Course: Data Mining, San Jose State | Oct 2023 – Nov 2023
- Conducted data preprocessing, including text cleaning on missing values, for a sentiment analysis task in natural language processing (NLP)
- Utilized TF-IDF (Term Frequency-Inverse Document Frequency) feature engineering to convert text data into numerical representations
- Addressed class imbalance by applying the Synthetic Minority Over-sampling Technique (SMOTE), resulting in enhanced model performance
- Evaluated multiple machine learning models, including Random Forest and Multinomial Naive Bayes, using 5-fold cross-validation. The Random Forest model was favored due to its superior performance, achieving an accuracy score of 79%.

Movie Theater Club Application, Course: Software Systems Engineering, San Jose State | Oct 2023 – Dec 2023
- Led a team of 3 in an agile env, acted as scrum master and dev in steering the delivery MERN project milestone, sprint meeting, task allocation
- Designed UML class, user diagram, 4 Mongodb Schemas, and Engineered logics to ensure access control using Node.js and JavaScript to govern multiple HTTP APIs. This architecture facilitates CRUD operations on Mongodb while ensuring data security.
- Managed project architecture, environment setup, and overarching logic, ensuring smooth coding processes and seamless React-Nodemon
- Built employee dashboard, utilized google Map API and browser to determine user location and get closest theater and its informations

AWARDS and HONORS
- Won the first-place of 2022 inaugural WWCS Intern PRFAQ contest on "Most likely to become an Amazon feature", AWS
- Dean's Honor Roll: Spring 2020, Fall 2020, Fall 2022, Fall 2023 at The College of Engineering and Computer Science, CSUS
- Dean's List: Fall 2017, Spring 2018, Fall 2018, Spring 2019 at ACCC, NJ