NGUYỄN HỒNG ĐĂNG

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OBJECTIVE

- Become a Senior ML Engineer who is not only good at academic researching but also have strong technical skills in the next three years.
- Achieve good opportunities to be trained by experts and approach to the newest technology.
- Understand the insight of business problems, the potential and limitation.
- Get access to a professional/creative environment, learn project/resource management and good things from people around.

EDUCATION

Hanoi University of Science and Technology 2016 - 2021

Engineer's degree in Computer and Information Systems Security/Information Assurance
Graduated, GPA 3.03 / 4.0

Le Hong Phong High School for the Gifted - Nam Dinh 2013 - 2016

Graduated, Mathematics specialization

AWARDS

Vietnam Mathematical Olympiad (VMO) 2016 - Consolation prize	2016
37th International Mathematics Tournament of the Towns (ITOT) - Third prize	2016
HSGS Olympiad in Mathematics 2015 - Second prize	2015
11th Hung Vuong summer camp Olympiad in Mathematics - Silver medal	2015
Nam Dinh municipal Mathematics contest - Second prize	2015, 2016

WORK EXPERIENCE

IWanna Technology Feb 2020 - Dec 2020

Machine Learning Engineer (Part-time)

IWanna Technology: smart solutions applied AI technologies for automation & optimization.

In a startup environment, I participate both in production & outsourcing projects with small team size.

I learn everything needed to complete the work, expand my knowledge breadthwise in many other aspects, such as web development.

- My main projects: Glicko2 rating system, Investigation & analysis of economic impacts of climate changes on Vietnamese agriculture, Vietnamese VAT invoice OCR.
- Other projects: Deep Face recognition, Smart Connector Room extension.

TOPICA Edtech Group - Edumall Aug 2019 - Nov 2019

Machine Learning Engineer (Part-time)

Edumall (production): Technology platform for massive online open courses in variety of fields.
I'm a member of Data Science team. My team's goal is to build a CDP (Customer Data Platform) and apply data mining techniques for better business decisions & customer experiences.

- My main project is "Smart solution in automatically mapping contacts with telesales representatives", which improve conversion rate (number of customers/number of contacts) by 4.x%, thus improve total revenue by 2.x% during a two-weeks test.
- Other projects: Recommender System, Contacts Ranking.

CERTIFICATIONS

Certificate of Completion - rubikTALENT Program, focus on Computer Vision 2019
by RubikAI - Nexus Frontier Tech

SKILLS

- Mathematics (Linear Algebra, Statistic and Probability), data structures and algorithms.
- Machine Learning/Deep Learning in Computer Vision & Data Science.
- Programming languages: Python 3, Java, C/C++.
- Libraries and frameworks: TensorFlow, Keras, OpenCV, scikit-learn, pandas, Matplotlib, statsmodels.
- Web development: Flask & extensions, RESTful API, HTML5 + CSS3 + JS (basic).
- Databases: SQL, MongoDB, Neo4j.
- Tools: Git, Docker, FCM, Linux.
- Others: Cyber Security, English.

PROJECTS

DOneLogin - Single Sign On (SSO) Provider combined with facial-2FA Sep 2020 – Present

Description	My Engineer's degree thesis project which achieved highest score on thesis defense: - Build a Single Sign On (SSO) Provider web service that implement the OpenID Connect (OIDC) specification and integrate 2FA mechanism for better security. - Build an Android application for 2FA facial registration/verification applied DL with frontal camera: face detection/recognition/anti-spoofing. - Train MobileFaceNet face recognition model, a 5 MB TFLite model which archive 99.5% accuracy and TAR=0.983@FAR=0.001 on LFW dataset. - Propose an ad-hoc protocol for secure messages exchange, inspired by the WebAuthn standard.
Responsibilities	Project owner/developer (personal project)
Technologies	- SSO web service: Python, Flask & extensions (Login, Mail, Session,..), Authlib, firebase-admin, SQL, Google reCAPTCHA v2, pycryptodome, OpenSSL. - Frontend: HTML5, CSS3, Bootstrap 3, SB Admin 2, JS, Handlebars JS. - Deep learning: Tensorflow 1.x, Tensorflow Lite, Google Colab. - Android: Java, CameraX, TFLite, MLKit, Firebase, OpenCV, Android Keystore.

IWanna Technology - Investigation & analysis of economic impacts of climate changes on Vietnamese agriculture Sep 2020 – Dec 2020

Description	Build a web app for investigating data, models analysis, visualization & reporting: - Website for multi-levels (region/province/district/household) data investigation. - Running statistic economic models (Ricardian approach) and display result on the web app: OLS, Hsiao two-stages method for panel data, Battese-Coelli Frontier model.
Responsibilities	BA, research papers, implement & test models, UX design (team size: 4).
Technologies	Django, MongoDB, statsmodels, linearmodels, pandas.

Iwanna Technology - Vietnamese VAT invoice OCR Sep 2020 – Oct 2020

Description	Vietnamese VAT invoice OCR: inputs a scanned photo of VAT invoice, outputs the ready-to-import data (*.xml/xlsx/csv) for accounting software. This project is just for a quick demo purpose so the approach is not the ideal one. - Google Cloud Vision document text OCR. - Rules-based approach to determine the layout, arrange/format & extract fields/table information, auto-correction.
Responsibilities	Research, implement & testing (team size: 1)
Technologies	Flask, google-cloud-vision, OpenCV, pandas, XlsxWriter.

Iwanna Technology - Glicko 2 rating system Mar 2020 – Aug 2020

Description	Glicko2 rating system applied for CAT (Computerized Adaptive Testing) education. The goal is finding how to evaluate the real ability/knowledge of learner in a specific field/subject and also approximate the difficulty of a question/challenge/test by a Glicko2 rating score: - Research, implement Glicko2 algorithm, test with generated pseudo data. - RESTful-APIs implementation for data CRUD operations. Deploy on development environment: database cluster, load balancing,.. - Develop a web tool for system admin: statistic & visualization, ensure the flexibility and easy-to-use to customize the rating calculation algorithm pipeline.
Responsibilities	Research papers, solution design, build model & pipeline, web developer, documentation (team size: 1).
Technologies	Flask, pandas, scikit-learn, MariaDB & Galera cluster, Docker, Plotly JS, mxGraph JS open-source.

KDD99 dataset analysis & data re-producing with SDN Jul 2020 – Aug 2020

Description	Personal project - Machine Learning applied in IDS: - KDD99 dataset analysis. - Simulate a SDN (Software Defined Network) using Mininet and ONOS. - Capture normal and attack raw TCP dump data within the network by pepperring it with multiple attacks: DOS flooding, Slowloris, Nmap probe, .. - Feature extraction from raw TCP dump data.
Responsibilities	Project owner/developer (personal project)
Technologies	Keras, scikit-learn, pandas, Matplotlib, Mininet, ONOS, Wireshark.

Edumall - Smart solution in mapping contacts with telesales representatives Sep 2019 – Nov 2019

Description	People who want to buy courses with cash payment method (the majority), will leave their information (phone number, address) on our website, we call this as a potential contact. Good contacts (address) will be passed directly to auto-COD system and the rest will be take care by telesales representatives. - Each telesales representative has his/her particular pros/cons and features. Sometime a representative could't convince a contact, but another could. So the right way mapping a contact to a telesales representative can cause impacts. - This project applies data mining techniques to intelligently map contacts with telesales representatives, but also satisfy some contrains and trade-offs: contact ranking/priority, work load balance, care time contrains, working time, fairness.
Responsibilities	Collect data from data sources, propose solutions, analyze & preprocess data, build & test model, report (team size: 10).
Technologies	Keras, pandas, scikit-learn, SQL, MongoDB, Hungarian mapping method, ad-hoc algorithms.

ID card localization using U-Net architecture Jul 2019

Description	rubikTALENT program thesis - Vietnamese identity card localization on a small handcrafted dataset. - Using modified version of U-Net to get the binary mask of the ID card on photo. - Then apply some image processing techniques (morphological transformations, blurring, contours finding) and use a lightweight CNN to correct card orientation. Result: absolute accuracy on test set, robust with complex background and light conditions, but very expensive computation.
Responsibilities	Researcher & developer (team size: 2)
Technologies	Keras, Tensorflow 1.x, OpenCV, Matplotlib, labelme annotation tool.

Several mini projects in Computer Vision, rubikTALENT program Apr 2019 – Jul 2019

Description	- Low-level CV: image processing techniques (filter kernels, Canny, Hough transform,..); feature extractions (HOG, SIFT,..), image stitching. - ML: object classification (SVM, BoW, handcrafted features extraction methods). - DL: implement & customize SOTA models to solve some challenges; e.g FERC-2013, semantic segmentation on the cityscapes dataset, coconuts counting (YOLOv3 + Kalman filters), face recognition, face liveness detection,..
Responsibilities	Researcher & developer
Technologies	Keras, Tensorflow 1.x, OpenCV, NumPy, scikit-learn, Matplotlib.

Vietnamese motor license plate recognition Feb 2019 – Apr 2019

Description	My first personal project on a Computer Vision task: - Using image processing techniques for plate localization and character segmentation: binary thresholding, morphogoly transform, Canny edges detection, LBP Cascade, contours finding, connected-component analysis, histogram projection, flood fill, .. - Simple SVM classifier for character recognition.
Responsibilities	Project owner/developer (personal project)
Technologies	OpenCV, Matplotlib, NumPy, C++.