Duc M. **Le**

SOFTWARE ENGINEER · SOFTWARE ARCHITECTURE RESEARCHER · SOFTWARE REPOSITORY MINER

941 Bloom Walk, Los Angeles, CA 90089-0781, U.S.

(+1) 213-884-8846 | ✉ ducmle@usc.edu | 🏠 www.lemduc.info | in lemduc

Summary

Blends research experience in Software Engineering field with diverse and practical trainings in the software industries of Vietnam, S.Korea and U.S. to offer solid skills in software design and development. Experiences include (1) mining software repositories/big data, (2) developing cloud-based applications and web services, (3) architecture design, recovery, and analysis, (4) software product line engineering.

Education

University of Southern California (USC)   *Los Angeles, U.S.*

PhD in Computer Science, Software Architecture Research Group (SoftArch)   *2013 - PRESENT*

- Advisor: *Prof. Nenad Medvidović*   GPA : 3.87/4.00

Pohang University of Science and Technology (POSTECH)   *Pohang, S.Korea*

MSc in Information Technology Convergence Engineering, Software Engineering Lab (SELab)   *2010 - 2012*

- Advisor: *Prof. Kyo Chul Kang*   GPA : 95.9/100.0

Hanoi University of Science and Technology (HUST)   *Hanoi, Vietnam*

BSc in Information Technology (Magna Cum Laude)   *2005 - 2010*

- Advisors: *Assoc. Prof. Huynh Quyet Thang (HUST), Dr. Martin Nordio (ETH Zurich)*   GPA: 8.07/10.00

Skills

Programming	Java, C/C++, Linux Shell, Scala, Python, HTML, PHP, JavaScript
Frameworks	Android, Spark, Hadoop, Spring, OSGi, EMF, GWT, jQuery, Joomla, Liferay, Microsoft Azure, Amazon EC2
Databases	MySQL, MongoDB, Cassandra
Others	Agile Development, iPython , LaTeX, SVN, Git, Asterisk PBX

Work Experience

NEC Laboratories America, Inc.   *Princeton, New Jersey, U.S.*

Research Intern   *May. 2017 - Aug. 2017*

Veritas Technologies LLC   *Culver, California, U.S.*

Software Engineering Intern   *May. 2016 - Aug. 2016*

- Worked for the Platform team on EV.Cloud project
- Applied topic modeling and machine learning techniques to intelligently suggest retention policies for customers' emails
- Implemented and verified the proposed approach on Enron dataset using Spark, Hadoop, Cassandra, and Spring Framework
- Was selected to present at VERITAS Cutting Edge 2016

Samsung Research America   *Irvine, Calirfornia, U.S.*

Research Intern   *Jun. 2015 - Sep. 2015*

- Worked for the Advanced Printing Software Lab
- Completed the end-to-end scenario of extracting UP (Unified Interfaces of Samsung Printers) variability information from an actual MFP (Multi-Functions Printers), representing this in a UP variability model, editing this information, and using it to configure a running simulator instance.
- This involved design and implementation using different technologies: OSGi, EMF, Eclipse plug-ins, REST-ful webservices, UI development.

Dasan Handysoft   *Seoul, S.Korea*

Software Engineer   *Sep. 2012 - Jun. 2013*

- Designed the server architecture of HandyUC 5.0, a platform providing various types of communication to enterprises, including email, instant messaging, and video conferencing.
- Implemented communication protocols of HandyUC, including XMPP protocol, Handysoft's legacy protocol, and a Http-based protocol.

HDC Media Vietnam   *Hanoi, Vietnam*

PHP developer & Asterisk PBX administrator   *Aug. 2009 - Jun. 2010*

- Developed a movie website based on Joomla platform to provide video contents to customers.
- Maintained and adapted Asterisk PBX system of the company to meet the company's requirements.

Honors & Awards

2016	**'Thesis in Three' - Best Presentation Award**, Doctoral Symposium, ICSE 2016	*Austin, TX, USA*
2015	**Awardee**, ACM SigSoft CAPS Travel Support for attending ICSE 2015	*Florence, Italy*
2014	**Awardee**, USC Doctoral Student Summer Institute Award	*Los Angeles, CA, U.S.*
2013	**Awardee**, Vietnam Education Foundation Fellowship	*U.S.*
2011	**Best Poster Prize**, 3rd International Symposium on IT Convergence Engineering	*Pohang, S.Korea*
2010	**Awardee**, Research Scholarship from National Research Foundation of Korea	*Pohang, S. Korea*
2010	**Awardee**, Certificate of Merit for Excellent Graduation Achievement	*Hanoi, Vietnam*

Research Experience

Automated Support for Adapting Hardware to Changes in the Architecture of Android
Los Angeles, U.S.

SOFTWARE ARCHITECTURAL RESEARCH GROUP, USC *Dec. 2016 - PRESENT*

- Cooperate with a phone-making company to study how to adapt the company's hardware to architectural changes in new versions of Android.

Architectural Change and Decay in Open-source Software
Los Angeles, U.S.

SOFTWARE ARCHITECTURAL RESEARCH GROUP, USC *Feb. 2014 - PRESENT*

- Reversed architectures of over 800 versions of 23 open-source systems, totaling over 120 MLOCs.
- Found evolution trends related to architectural changes in software systems, rate of architectural decay occurrences, correlations among implementation decisions and architectural changes.
- Use implicit problems, e.g., architectural- and code-smells, in combination with explicit problems, e.g. reported issues and bugs, to provide an accurate, systematic and in depth approach to predict potential system problems, particularly bugs.

Privacy Preserving in Distributed Computation
Los Angeles, U.S.

SOFTWARE ARCHITECTURAL RESEARCH GROUP, USC *May. 2014 - Aug. 2014*

- Studied sTile, a tile-based architecture, which tackles the problem of distributing computation onto cloud, while providing probabilistic guarantees that agents compromising parts of the cloud wouldn't be able to learn the private data and the nature of the computation.
- Deployed and evaluated a prototype of sTile on several main cloud services (Azure, EC2, Google Cloud).

Impact Analysis of Software Requirement Change based on Feature Relationships
Pohang, S.Korea

SOFTWARE ENGINEERING LAB, POSTECH *Sep. 2012 - Feb. 2013*

- Reversed feature models based on variation points and variants embedded by C preprocessor.
- Verified consistency between designed models and reversed models and provided refactoring advice.
- Integrated into VULCAL Workbench, a CASE tool that supports software product line engineering.

CloudStudio - Enabling distributed projects to produce software "on the cloud"
Hanoi, Vietnam

ETH ZURICH & HUST *Aug. 2009 - Jun. 2010*

- Created the initial version of CloudStudio, an Integrated Development Environment (IDE) enabling globally distributed software projects and producing software "on the cloud".
- Developed the following features: project management, code editor, project compilation, group communication.

Publications

A Large-Scale Study of Architectural Evolution in Open-Source Software Systems
U.S.

POOYAN BEHNAMGHADER*, DUC M. LE*, JOSHUA GARCIA, DANIEL LINK, ARMAN SHAHBAZIAN, NENAD MEDVIDOVIC *Nov. 2016*

- Empirical Software Engineering (EMSE) Journal

Architectural-Based Speculative Analysis to Predict Bugs in a Software System
Austin, U.S.

DUC M. LE *May. 2016*

- Proceeding of the 38th International Conference on Software Engineering (ICSE), Doctoral Symposium track

Relating Architectural Decay and Sustainability of Software Systems
Venice, Italy

DUC M. LE, CARLOS CARRILLO, RAFAEL CAPILLA, NENAD MEDVIDOVIC *Apr. 2016*

- Proceeding of the 13th Working IEEE/IFIP Conference on Software Architecture (WICSA)

An Empirical Study of Architectural Change in Open-Source Software Systems
Florence, Italy

DUC M. LE, POOYAN BEHNAMGHADER, JOSHUA GARCIA, DANIEL LINK, ARMAN SHAHBAZIAN, NENAD MEDVIDOVIC *May. 2015*

- Proceeding of the 12th Working Conference on Mining Software Repositories (MSR)

Validating consistency between feature model and its implementation
Pisa, Italy

DUC M. LE, LEE HYESUN, KYO C. KANG, KEUN LEE *Jun. 2013*

- Proceeding of the 13th International Conference on Software Reuse (ICSR)