

# Curriculum Vitae: Nguyen The Long | Ph.D., Lecturer, Senior Researcher



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## Education

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**Ph.D. Computer Science** (Mathematical modeling, calculating methods and the program systems), Irkutsk National Research Technical University, 2013-2017.

Advisor: Prof. Denis Sidorov, Department of Applied Mathematics, Melentiev Energy Systems Institute of Siberian Branch of the Russian Academy of Sciences (<http://www.mathnet.ru/eng/person17845>).

Thesis: *Development of models and software complexes in anthropometry problems based on computer vision algorithms.*

**Engineer** (Computing machines, complexes, systems and networks), Irkutsk National Research Technical University, 2008-2013.

## Work experience

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**September 2016 – November 2016:** Technician at Department of Information Technology, Irkutsk National Research Technical University, Irkutsk city, Russia.

**November 2016 – June 2017:** Research Fellow at Department of Information Technology, Irkutsk National Research Technical University, Irkutsk city, Russia.

**June 2017 – October 2019:** Ph.D., Research Fellow at Department of Information Technology, Lecturer at Baikal School of BRICS, Irkutsk National Research Technical University, Irkutsk city, Russia.

**November 2019 – Present:** Ph.D., Lecturer, Senior Researcher at Laboratory of Artificial Intelligence and Machine Learning, Institute of Information Technology and Data Science, Irkutsk National Research Technical University, Irkutsk city, Russia.

## Research themes

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### **Computer Vision, Images Processing:**

Recognition and object detection (face detection, color detection, road pavement defects detection, Automatic number-plate recognition, ...).

Morphological operations, calibration, background subtraction, noise reduction.

Objects and features classification.

3D Human-reconstruction (3D-Human Modelling, 3D Processing Libraries: MakeHuman, Min3D, Weka).

Image processing libraries: OpenCV, OpenGL.

Features extraction (anthropometrical features extraction, road defects features extraction).

Segmentation (graph-cuts, Otsu, ...), measurement human body sizes.

Iterative closest point (ICP).

### **Machine Learning & Deep Learning:**

Application methods and algorithms of machine learning & deep learning: K-means, k-nearest neighbors (kNN), support vector machine (SVM), random forest, naive Bayes, decision tree learning, artificial neural networks, clustering, Principal component analysis (PCA), ...

## Selected talks

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- “Mathematical Morphology Methods in Digital Image Processing”, XIX Baikal All-Russia Conference Information and Mathematical Technologies in Science and Management, 2014, Baikal, Russia.
- “Studies of Anthropometrical Features using Machine Learning Approach”, 4th International Conference - Analysis of Images, Social networks and Texts, 2015, Yekaterinburg, Russia.
- “On road defects detection and classification”, 5th International Conference - Analysis of Images, Social networks and Texts, 2016, Yekaterinburg, Russia.
- “Robust determination of bubbles size distribution based on image analysis”, XVII Baikal International School-Seminar: Methods of Optimization and their Applications, 2017, Irkutsk, Russia.

## Skills and experience

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- Languages: English, Russian, Vietnamese.
- Teaching experience: Information Technology (IT) Management, Software and Computing, Programming, Computational Modelling and Data Analytics, Artificial Intelligence Technology.
- Certificate of Samsung IT Academy for AI lecturers on the course “Neural networks for computer vision and natural language processing”.
- 5+ years of work in programming: C++, C#, Matlab, Python, Java, PHP, Google Colab, Mobile programming on Android OS.
- UML design, HTML&CSS code, LaTeX code.
- Database knowledge, MySQL, Basic Photoshop CS.
- Experiences of work on image processing libraries: OpenCV, OpenGL and other 3D processing libraries.
- Software copyright registration for 3 programs.
- Attended in 3 various projects: Anthropometrical features extraction and classification, road pavement defects detection and classification, bubbles detection and classification.
- Won the first prize in the category of "young inventor" in the contest of creative-science projects at science festival INRTU 2018 with project “road defects detection and classification”.
- Teamwork, hard-working on time by the deadline.

## Main publications

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Total of 23 publications in English and Russian languages. Some main publications in English (indexed in Web of Science and Scopus):

1. **Nguyen T. Long**, Afanasiev D. Alexander, Nguyen T. Huong. “Segmentation of Forest Fire Images Based on Convolutional Neural Networks”. *International Journal of Artificial Intelligence*, 19:1 (2021), 21-35 (Scopus Q1).
2. **Nguyen, L.T.**, Nguyen, H.T., Afanasiev, A.D. et al. Automatic Identification Fingerprint Based on Machine Learning Method. *J. Oper. Res. Soc. China* (2021). <https://doi.org/10.1007/s40305-020-00332-7> (Web of Science, Scopus Q3)
3. Nguyen T. Huong, **Nguyen T. Long**. “Deep Learning Methods for Classification of Road Defects”. *International Journal of Artificial Intelligence*, 19:1 (2021), 178-192 (Scopus Q1).
4. T.H. Nguyen, **T.L. Nguyen**, D.N. Sidorov, A.I. Dreglea. “A Robust Approach to Detect Gas Bubbles through Images Analysis”. *Intelligent Decision Technologies*, 14:2 (2020), 153–158, IOS Press (Web of Science, Scopus Q3).
5. T. H. Nguyen, **T. L. Nguyen**. “Fingerprints Classification through Image Analysis and Machine Learning Method”. *Algorithms*. – 2019. – 12(11), 241 (Web of Science, Scopus Q3).
6. **T. L. Nguyen**, T. H. Nguyen. “ROC Curve Analysis for Classification of Road Defects”. *BRAIN. Broad Research in Artificial Intelligence and Neuroscience*. – 2019. – V. 10 – No. 2. – P. 65–73 (Web of Science).
7. T.H. Nguyen, **T.L. Nguyen**, D.N. Sidorov, A.I. Dreglea. “Machine Learning Algorithms Application to Road Defects Classification”. *Intelligent Decision Technologies*, 12:1 (2018), 59–66, IOS Press (Web of Science, Scopus Q3).

8. Huong T. Nguyen, **Long T. Nguyen**, Aliona I. Dreglea. "Robust Approach to Detection of Bubbles Based on Images Analysis". *International Journal of Artificial Intelligence*, 16:1 (2018), 167-177 (Scopus Q1).
9. **T.L. Nguyen**, T.H. Nguyen. "Automatic Anthropometric System Development Using Machine Learning". *BRAIN - Broad Research in Artificial Intelligence and Neuroscience*, V.7 (2016), 5-15, EduSoft (Web of Science)
10. **T.L. Nguyen**, T.H. Nguyen, A. Zhukov. "Studies of Anthropometrical Features using Machine Learning Approach". *CEUR Workshop Proceedings*, V.1452 (2015), 96-105 (Scopus).
11. **T.L. Nguyen**, T.H. Nguyen, A. Zhukov. "On Road Defects Detection and Classification". *CEUR Workshop Proceedings*, V.1710 (2016), 264-275 (Scopus).

## 2 referees

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1. Professor **Denis Sidorov**, Doctor of physic-mathematical sciences, Leading Research Fellow, Melentiev Energy Systems Institute of Siberian Branch of Russian Academy of Sciences. Address: Lermontov str., 130, Irkutsk, Russia, 664033.  
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2. Professor Russian Academy of Sciences **Michael Khachay**, Doctor of physic-mathematical sciences, Head of mathematical programming lab, Krasovsky Institute of Mathematics and Mechanics of the Ural Branch of the Russian Academy of Sciences. Address: S. Kovalevskaja st., 16, Yekaterinburg, Russia, 620990.  
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