

# Hai Le The

Witbreuksweg 399-108  
7522 ZA Enschede, Netherlands  
<https://scholar.google.com/citations>  
mobile +31 659 604 540  
✉ [h.lethe@utwente.nl](mailto:h.lethe@utwente.nl)



## Education

- 2015–present **PhD. in Nanotechnology**  
*BIOS, MESA+ Institute for Nanotechnology, University of Twente, Netherlands.*  
supervisor Professor Jan C T Eijkel.  
project "Metal nanoparticles, nanochannels, and nanobubbles".
- 2012–2014 **M.Sc. in Micro and Nano Systems Technology**  
*Buskerud and Vestfold University College, Norway.*  
supervisor Professor Frank Karlsen.  
GPA Above B.  
thesis "A study on optimal design and fabrication of an effective passive micromixer", **grade: A.**
- 2007–2012 **B.E. in Electronics and Telecommunication Engineering**  
*Ho Chi Minh City University of Technology, Viet Nam.*  
supervisor Associate Professor Hoang Dinh Chien.  
GPA 8.53/10, **first class honor degree.**  
thesis "Development of an image processing application for real-time eye tracking and blink detection used in car crash prevention systems", **grade: 9.2/10.**

## Professional works

- Institute for Computational Science (INCOS), Ton Duc Thang University, Vietnam.*
- position **Researcher**, Nov. 2014 - Apr. 2015.  
field Micro/Nano Systems Technology, Microfluidics.

## Publications

### SCI Journals

- Nov. 2014 [4] **Hai Le The**, Bao Quoc Ta, Hoa Le-Thanh, Tao Dong, Frank Karlsen, Trung Nguyen Thoi, Geometric effects on mixing performance in a novel passive micromixer with trapezoidal-zigzag channels, **submitted to** *Journal of Micromechanics and Microengineering, IOP.*
- Nov. 2014 [3] Hoa Le-Thanh, Bao Quoc Ta, **Hai Le The**, Vy Nguyen, Kaiying Wang, Frank Karlsen, Low-cost fabrication of hollow microneedle arrays using CNC machining and UV lithography, **accepted by** *Journal of Microelectromechanical Systems, IEEE.*
- Jan. 2015 [2] **Hai Le The**, Hoa Le-Thanh, Tao Dong, Bao Quoc Ta, Nhut Tran-Minh, Frank Karlsen, An effective passive micromixer with shifted trapezoidal blades using wide Reynolds number range, *Chemical Engineering Research and Design, Elsevier*, 93 (2015) 1-11, DOI: [10.1016/j.cherd.2014.12.003](https://doi.org/10.1016/j.cherd.2014.12.003).
- Sep. 2014 [1] Hoa Le-Thanh, **Hai Le The**, Nhut Tran-Minh, Vy Nguyen, Kaiying Wang, Frank Karlsen, Optimal design and fabrication of polymer-based microneedle for safe collection of whole blood, *Micro & Nano Letters, IET*, 9 (2014) 644-649, DOI: [10.1049/mnl.2014.0242](https://doi.org/10.1049/mnl.2014.0242).

## International conferences

- Apr. 2015 [6] **Hai Le The**, Bao Quoc Ta, Hoa Le-Thanh, Frank Karlsen, Trung Thoi-Nguyen, A novel design of passive split and recombination micromixer with trapezoidal zigzag channel, in *Proc. of 10<sup>th</sup> IEEE-International Conference on Nano/Micro Engineered and Molecular Systems* (2015).
- Apr. 2014 [5] **Hai Le The**, Nhut Tran-Minh, Hoa Le-Thanh, Frank Karlsen, A novel passive micromixer with multimixing mechanisms for high mixing efficiency at low Reynolds number, in *Proc. of 9<sup>th</sup> IEEE-International Conference on Nano/Micro Engineered and Molecular Systems* (2014) 651-654, DOI: [10.1109/NEMS.2014.6908896](https://doi.org/10.1109/NEMS.2014.6908896).
- [4] Hoa Le-Thanh, Nhut Tran-Minh, **Hai Le The**, Frank Karlsen, A novel design of hollow microneedle for blood sample collection, in *Proc. of 9<sup>th</sup> IEEE-International Conference on Nano/Micro Engineered and Molecular Systems* (2014) 430-435, DOI: [10.1109/NEMS.2014.6908843](https://doi.org/10.1109/NEMS.2014.6908843).
- Feb. 2014 [3] **Hai Le The**, Nhut Tran-Minh, Hoa Le-Thanh, and Frank Karlsen, A novel passive micromixer with trapezoidal blades for high mixing efficiency at low Reynolds number flow, in *Proc. of 2<sup>nd</sup> IEEE-Middle East Conference on Biomedical Engineering* (2014) 25-28, DOI: [10.1109/MECBME.2014.6783199](https://doi.org/10.1109/MECBME.2014.6783199).
- [2] Hoa Le-Thanh, Nhut Tran-Minh, **Hai Le The**, and Frank Karlsen, A study on mechanical strength of pyramid-shaped microneedle, in *Proc. of 2<sup>nd</sup> IEEE-Middle East Conference on Biomedical Engineering* (2014) 29-32, DOI: [10.1109/MECBME.2014.6783200](https://doi.org/10.1109/MECBME.2014.6783200).
- Jan. 2014 [1] Nhut Tran-Minh, Frank Karlsen, Tao Dong, **Hai Le The**, A simple and low cost micromixer for laminar blood mixing: design, optimization, and analysis, *Commun. Comp. Inf. Sci.* 404 (2014) 91-104, DOI: [10.1007/978-3-642-54121-6\\_8](https://doi.org/10.1007/978-3-642-54121-6_8).

## Grants, honors and awards

- Sep. 2012 Norwegian Quota Scholarship Scheme for Master program.
- Apr. 2012 **Gold Medal for first class honour degree.**  
Being awarded the Graduate Student Merit Award for **Top-ranking Graduates** by Prof. Vu Dinh Thanh, Rector of the Hochiminh City University of Technology, Vietnam.
- 2011 Certificate of "**Setting Mind, Leading Life**" course, Topion training & consulting group.
- 2010-2011 Being awarded the Kitagawa Scholarship of Sorun Corporation for **excellent academic grade.**
- 2009 Scholarship of Faculty of Electrical & Electronics Engineering for **excellent academic achievements.**
- 2008-2009 Being awarded the title "**Comprehensive student**" for those who has delivered very good academic performance and participated actively in social activities.
- 2008 Certificate of Department for **Great Voluntary Green Summer Campaign.**

## Reviewer

### Journals

International Journal of Heat and Mass Transfer, Elsevier.

### Conferences

10<sup>th</sup> IEEE-International Conference on Nano/Micro Engineered and Molecular Systems (IEEE-NEMS), Xi'an, China.

## Conference oral presentation

- Apr. 2014 9<sup>th</sup> IEEE-International Conference on Nano/Micro Engineered and Molecular Systems (IEEE-NEMS), Honolulu, Hawaii, USA.

## Various skills

### Microfluidics

- overview Skilled in design, simulation, fabrication and practical test of microstructure devices.
- work exp. CFD, soft-lithography for fabrication of **proposed micromixers** for blood testing applications, image processing for evaluating fluid mixing performance.
- Development of new fabrication method to fabricate a polymer-based **microneedle array** with low fabrication cost, high throughput and good repeatability.
- Development of a novel **Pretreatment System** for Cervical cancer sample preparation with the integration of Micromixer and Micro-refining unit.

### Hand-on skills

- MEMS technology photolithography, soft-lithography, surface and bulk micromachining technologies, e.g. wet etching, dry etching, deposition techniques.
- equipment Spinning machine, Karlsuss - mask aligner, Thermal evaporator, Plasma-Therm SLR Series machine, Profilometer, Interferometer, Leica microscope, Inverted microscope OLYMPUS IX5, Scanning Electron Microscope, Model 100 syringe pump.

### Electronics

- overview Skilled in electronics systems design, data acquisition systems, signal processing.
- work exp. Design a **sine wave signal generator**, design a readout circuit for capacitive sensor using switched-capacitor.

### Image processing

- overview Skilled in image processing programming for detecting and recognizing objectives.
- work exp. C, C++/OpenCV 2.1 based software for eye-blink detection on Windows platform, Java/OpenCV 2.1 based software for eye-blink detection on Androids platform (**ASUS Transformer TF101 & Galaxy i9003**).

### Simulation and modeling

- physics COMSOL Multiphysics 4.3b, ANSYS 15.0, SolidWorks 2013, L-edit.
- electrical LTSpice 4.0, LabView 8.5, S-edit, Orcad 10.5.
- math MATLAB, Origin 9.0, Excel.

### Programming

- embedded Assembler, C, Pascal, Android OS.
- pc C, C++, Java, OpenCV 2.1, CCNA, Pascal.

## Research interests

- Micro/nanofluidic systems, computational fluid dynamics, material science.
- Electronics circuit design, electronics sensors.
- Image processing technique for detecting and recognizing objectives.
- Software programming on Windows and Androids platform.

## References

### Professors

- name **Prof. Frank Karlsen**
- university Dept. of Micro and Nano Systems Technology, Buskerud and Vesfold University College, Norway.

contact inf. phone: +47 40 40 34 80, email: [Frank.Karlsen@hbv.no](mailto:Frank.Karlsen@hbv.no)  
name **Assoc. Prof. Tao Dong**  
university Dept. of Micro and Nano Systems Technology, Buskerud and Vesfold University College,  
Norway.

contact inf. phone: +47 96 82 24 43, email: [Tao.Dong@hbv.no](mailto:Tao.Dong@hbv.no)  
name **Assoc. Prof. Hoang Dinh Chien**  
university Faculty of Electrical & Electronics Engineering, Ho Chi Minh City University of Technology,  
Viet Nam.

contact inf. phone: +84 908 653 435, email: [hdchien@hcmut.edu.vn](mailto:hdchien@hcmut.edu.vn)  
[Lab engineers](#)  
name **M.Sc. Zekija Ramic**  
university Dept. of Micro and Nano Systems Technology, Buskerud and Vesfold University College,  
Norway.

contact inf. phone: +47 33 03 11 16, email: [Zekija.Ramic@hbv.no](mailto:Zekija.Ramic@hbv.no)