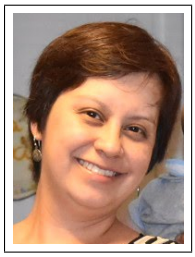
Violeta Chang Camacho



Personal Information

Name, *Violeta Noemí Chang Camacho*.

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Work address, *Office 229, Department of Computer Engineering, USACH. Av. Ecuador 3659, 9170124 Estación Central, Chile*.

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Education

2015 **PhD in Computer Science**, *University of Chile*, Santiago, Chile.

2006 **MsC in Computer Science**, *National University of Trujillo*, Trujillo, Peru.

2001 **Computer Engineer**, *National University of Trujillo*, Trujillo, Peru.

2001 **Br. in Computer Science**, *National University of Trujillo*, Trujillo, Peru.

PhD Thesis

Title *Segmentation and classification of human sperm heads towards morphological sperm analysis*

Advisor Prof. Nancy Hitschfeld

Co-advisors Prof. Steffen Härtel and Prof. Laurent Heutte

Master Thesis

Title *Development of a Nonlinear Method for Fingerprint Image Enhancement*

Advisor Prof. Nelson Aragones

Undergraduate Thesis

Title *Alternative Methods for Automatic Image Contrast Enhancement*

Advisor Prof. Nelson Aragones

Academic Stays

2014 **University of Rouen, LITIS Laboratory**, *Rouen, France*, Prof. Laurent Heutte and Prof. Caroline Petitjean.

Areas of Interest

Machine Learning, Pattern Recognition, Image Processing, Image Analysis, Computer Vision

Academic Experience

2019–now **Assistant Professor**, *Department of Computer Engineering, University of Santiago of Chile, Santiago, Chile*, Research lines: Image Processing and Analysis, Machine Learning.

2015–2019 **Postdoctoral researcher**, *Laboratory for Scientific Image Analysis (SCIAN-Lab), Faculty of Medicine, University of Chile, Santiago, Chile.*

2009–2011 **Teaching Assistant**, *Department of Computer Science, University of Chile, Santiago, Chile*, Asignatures: Databases, Databases and Knowledge.

2006–2008 **Assistant Professor**, *Graduate School, National University of Trujillo, Trujillo, Peru*, Asignatures: Digital Image Processing, Distributed Databases, Multimedia Databases.

2001–2008 **Assistant Professor**, *Department of Computer Science, National University of Trujillo, Trujillo, Peru*, Asignatures: Algorithms, Data Structures, Computer Graphics, Databases, Special Topics on Image Processing, Special Topics on Databases.

Academic Awards and Distinctions

2019 **CONICYT Insertion to Academy Grant**, *Department of Computer Engineering, University of Santiago of Chile.*

2018 **Honour status**, *Computers in Biology and Medicine.*

2015 **FONDECYT Postdoc Fellowship**, *SCIAN-Lab at University of Chile.*

2015 **Research Distinction**, *Department of Computer Science at University of Chile.*

2010 **CONICYT Scholarship**, *Financial Support for PhD Thesis.*

2009 **CONICYT Scholarship**, *A four-year PhD scholarship.*

2006 **2nd Best Student**, *Master program studies.*

2001 **5th Best Undergraduate Thesis**, *Annual Contest at National University of Trujillo, Peru.*

Publications

Journal articles

2017 **Violeta Chang**, Laurent Heutte, Caroline Petitjean, Steffen Härtel, Nancy Hitschfeld. *Automatic classification of human sperm head morphology.* Computers in Biology and Medicine (CBM), 84: 205–216. Impact factor: 1.836. Cites: 1 (Google scholar citations, June 5 2018)

2017 **Violeta Chang**, Alejandra García, Nancy Hitschfeld, Steffen Härtel. *Gold-standard for computer-assisted morphological sperm analysis.* Computers in Biology and Medicine (CBM), 83: 143–150. Impact factor: 1.836. Cites: 4 (Google scholar citations, June 5 2018)

2014 **Violeta Chang**, Jose M. Saavedra, Victor Castañeda, Luis Sarabia, Nancy Hitschfeld, Steffen Härtel. *Gold-standard and improved framework for sperm head segmentation.* Computer Methods and Programs in Biomedicine (CMPB), 117(2): 225–237. Impact factor: 2.503. Cites: 17 (Google scholar citations, June 5 2018)

Conference articles

2018 **Violeta Chang**. *Generation of a HER2 Breast Cancer Gold-Standard Using Supervised Learning from Multiple Experts*. In: Stoyanov D. et al. (eds) Intravascular Imaging and Computer Assisted Stenting and Large-Scale Annotation of Biomedical Data and Expert Label Synthesis. LABELS 2018, CVII 2018, STENT 2018. Lecture Notes in Computer Science, vol 11043. Springer, Cham

2013 Jose M. Saavedra, Benjamin Bustos, **Violeta Chang**. *An Accurate Hand Segmentation Approach using a Structure based Shape Localization Technique*. Proceedings of International Conference on Computer Vision Theory and Applications (VISAPP 2013), 321-326

Research Projects

2019–2022 PAI (77180012): Fortalecimiento del área de aprendizaje de máquinas en pre y posgrado e investigación del Departamento de Ingeniería Informatica. Principal researcher.

2019–2021 STIC-AMSUD (19STIC-04): Optimized deep learning based representations for computer vision problems. Researcher.

2015–2019 FONDECYT (3160559): Generation of biomedical gold-standards using supervised learning based on multiple experts. Principal researcher.

2014–2015 STIC-AMSUD (14STIC-01): Dynamic selection of classifiers with application in real environments. Researcher.

2012 FONDEF (D07I1019): Center for internet-assisted digital spermiograms. Collaborator.

International Reviewer

Computers in Biology and Medicine (Elsevier)

Journal of Medical and Biological Engineering (Springer)

MICCAI Conference

Research Work

At University of Santiago of Chile (Chile)

2019–now STIC-AMSUD: Optimized deep learning based representations for computer vision problems

At University of Chile (Chile)

2015–2019 FONDECYT: Generation of biomedical gold-standards using supervised learning based on multiple experts

2014–2015 STIC-AMSUD: Dynamic Selection of Classifiers with Application in Real Environments

2012–2015 Detection, Segmentation, Characterization and Classification of Human Sperm Heads

2009–2012 Searching in Compressed Image Databases

2009 Image Categorization using Bag of Words

2009 Automatic Handwritten Text Recognition for Bank Checks (Chequematico - Itau Bank)

2008 Tree-Ring Detection using Active Contours

At National University of Trujillo (Peru)

2006 Development of a Nonlinear Method for Fingerprint Image Enhancement

2005 Improvement of the Facial Feature Selector using Wavelets for Automatic Face Recognition

2004 Development of an Efficient Method for Automatic Handwritten Digit Recognition

2002 Axiomatic Development of the Entropy Function

2001 Alternative Methods for Automatic Contrast Image Enhancement

Supervised Undergraduate Thesis

2007 Design of a Compression Algorithm for Mammographic Images

2006 Performance Improvement of the Extraction of Minutiae for Automatic Fingerprint Recognition

2006 Location of Active Contours for Segmentation of Obstetric Ultrasound Images and Brain Computer Tomography

2005 Design and Implementation of an Algorithm for Automatic Signature Verification

2005 Automatic White Asparagus Classification Algorithm Based on Physical Characteristics

2005 Implementation of a Segmentation Algorithm for Handwritten Character Images

2004 Automatic Recognition of Arabic Numbers using Artificial Neural Networks

2004 Medical Diagnostic Support System Based on Characterization and Counting of White Blood Cell

Invited Talks

2016 *Ground-Truth and Gold-Standard: Computer Vision Applications*, 1st Conference on Computer Vision in Medical Imaging: Processing and 3D Modeling, Keynote Speaker, Arequipa, Peru

2016 *Segmentation and classification of human sperm heads towards morphological sperm analysis*, 1st Conference on Computer Vision in Medical Imaging: Processing and 3D Modeling, Keynote Speaker, Arequipa, Peru

2016 *Generation of biomedical gold-standards using supervised learning based on multiple experts*, Women in Computing Chile (ChileWIC), Santiago, Chile (Poster)

2016 *Segmentation and classification of human sperm heads towards morphological sperm analysis*, Fair of Postgraduate School, Faculty of Engineering of University of Chile, Santiago, Chile (Poster)

2008 *Searching and Compressing Images*, Institute for Cell Dynamics and Biotechnology Workshop, Marbella, Chile

2006 *Development of a Nonlinear Method for Fingerprint Image Enhancement*, 1st. Computer Science Week, Trujillo, Peru

2005 *Forensic Image Processing*, Specialized Course on Cibernetic Criminalistics, Trujillo, Peru

2004 *General Aspects of Biometrics*, 5th Italo-Latin American Conference on Applied & Industrial Mathematics, Trujillo, Peru

2004 *Image Processing and Image Contrast Enhancement*, 2nd Computing Symposium "Updating in Computer Science", Trujillo, Peru

2004 *Counting the number of elements per unit area*, Exposystem 2004, Trujillo, Peru

2003 *Two-Phase Method for Data Asignment in Distributed Databases*, 21st Colloquium of the Peruvian Mathematical Society, Arequipa, Peru

2001 *Alternative Methods for Automatic Image Contrast Enhancement*, 2nd National Fair of Science and Technology, Lima, Peru

2001 *Alternative Methods for Automatic Image Contrast Enhancement*, 19th Colloquium of the Peruvian Mathematical Society, Trujillo, Peru

2001 *Data Replication in Distributed Environments*, 1st Computing Symposium "Integrating New Technology Trends", Trujillo, Peru

2001 *Automatic Image Contrast Enhancement by Applying Partial Differential Equations*, First International Conference on Applied and Computational Mathematics (CIMAC-I), Trujillo, Peru

Academic References

1 **Prof. Nancy Hitschfeld**, *Department of Computer Science at University of Chile*, nancy@dcc.uchile.cl.

2 **Prof. Claudio Gutierrez**, *Department of Computer Science at University of Chile*, cgutierr@dcc.uchile.cl.