DAVID GARCIA MATO

BIOMEDICAL ENGINEER

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EXPERIENCE

Biomedical Engineer at **Universidad Carlos III de Madrid**

Department of Bioengineering and Aerospace Engineering

September 2015 – Ongoing Madrid,Spain

- Software development for computer-assisted maxillofacial surgery.
- Surgical navigation and augmented reality in surgical oncology.
- Medical image processing, tracking systems, 3D printing.
- Supervisor: Javier Pascau

Research Engineer at **Queen's University**

Laboratory for Percutaneous Surgery (Perk Lab)

March 2019 – April 2019 Kingston, ON, Canada

- Surgical simulation and training based on eye tracking device.
- Supervisor: Gabor Fichtinger

Research Engineer at **Children's National Medical Center**

Sheikh Zayed Institute for Pediatric Surgical Innovation

January 2019 – March 2019 Washington, DC, United States

- Automatic virtual planning in pediatric neurosurgery.
- Quantifying overcorrection in craniosynostosis reconstruction planning.
- Supervisor: Marius George Linguraru

Research Engineer at **Queen's University**

Laboratory for Percutaneous Surgery (Perk Lab)

November 2016 – May 2017 Kingston, ON, Canada

- Development of 3D gaze tracking using eye and head pose tracking
- Gaze tracking for skill assessment in US-guided needle insertions.
- Supervisor: Gabor Fichtinger

Research Engineer at **Medical Imaging Laboratory**

Hospital General Universitario Gregorio Marañón

June 2015 – July 2015 Madrid, Spain

- Ultrasound-guided breast tumor resection using based on EM tracker.
- Desktop 3D Printing to improve surgical navigation in acral tumors.

Internship at **Medical Imaging Laboratory**

Hospital General Universitario Gregorio Marañón

February 2015 – June 2015 Madrid, Spain

- Multicamera tracking system for intraoperative radiation therapy.

MY LIFE PHILOSOPHY

"Winners are not people who never fail but people who never quit"

EXPERTISE

Computer-Assisted Interventions | Medical Imaging | Tracking Systems | 3D Printing | Data Analysis | Research

EDUCATION

Ph.D. in Biomedical Engineering

Universidad Carlos III de Madrid

Oct 2016 – Ongoing Madrid, Spain

M.Sc. in Multimedia and Communications

Universidad Carlos III de Madrid

Sep 2015 – Sep 2016 Madrid, Spain

B.Sc. in Biomedical Engineering

Universidad Carlos III de Madrid

Sep 2011 – Jun 2015 Madrid, Spain

International Mobility Program

Queensland University of Technology

Jul 2014 – Dec 2014 Brisbane, Australia

STRENGTHS

Hard-working | Problem Solving Skills | Eye for detail | Creativity | Teamwork | Constant Learner | Natural Curiosity

LANGUAGES

Spanish ●●●●●

English ●●●●○

French ●●○○○

TEACHING

Advanced Topics on Medical Imaging
B.Sc. in Biomedical Engineering, Universidad Carlos III de Madrid
January 2016 – Ongoing Madrid, Spain

Image Processing and Reconstruction
B.Sc. in Biomedical Engineering, Universidad Carlos III de Madrid
January 2016 – Ongoing Madrid, Spain

Medical imaging techniques and applications
Improvements in Education Quality and Innovative applications in Biomedicine, Universidad Carlos III de Madrid
November 2018 Madrid, Spain

Image Processing with ImageJ
Instituto Nacional de Técnica Aeroespacial (INTA)
November 2018 Madrid, Spain

GuidedUS: Hands-on Tutorial on Rapid Prototyping of Ultrasound-guided Intervention Systems
Medical Image Computing and Computer-Assisted Interventions 2018
September 2018 Granada, Spain

Tutorial on Rapid prototyping of image guided therapy applications on open sources software platform
Computer Assisted Radiology and Surgery conference 2018
June 2018 Berlin, Germany

Supervisor of bachelor's thesis: "Building and Validation of Low-Cost Breast Phantoms for Interventional Procedures"
B.Sc. in Biomedical Engineering, Universidad Carlos III de Madrid
January 2018 - June 2018 Madrid, Spain

Python for Beginners
Universidad Carlos III de Madrid
December 2017 Madrid, Spain

Image Processing and 3D Visualization
Master's degree in Medical Physics. UNED
June 2016 Madrid, Spain

Medical Instrumentation and Devices
B.Sc. in Biomedical Engineering, Universidad Carlos III de Madrid
November 2015 Madrid, Spain

AWARDS

Erasmus+ International Grant
February 2019

UC3M Ph.D. Mobility Grant
January 2019

ISCAS Student Travel Award
June 2018

Hamlyn Symposium Travel Award
June 2017

ISCAS-CARS Best Poster
June 2016

UC3M M.Sc. Full Scholarship
September 2015

UC3M B.Sc. Mobility Grant
July 2014

CERTIFICATES

Defibrillator and CPR First Aid
October 2017

IELTS English Certificate [7.5]
April 2016

First Certificate in English (FCE)
June 2009

FURTHER TRAINING

Medical Imaging Summer School
July 2018 - Favignana, Italy

Int. Summer School on Deep Learning
July 2017 - Bilbao, Spain

Queensland University of Technology
Course: Introducing Robotics
February 2017 - Online

UCL Medical Image Computing Summer School (MedICSS)
July 2016 - London, UK

University of Twente
Course: Ultrasound Imaging
May 2016 - Online

University of Wollongong
Course: 3D Bioprinting
April 2016 - Online

University of Reading
Course: Begin Robotics
March 2016 - Online

JOURNAL ARTICLES

- D. García-Mato, E. Marinetto, A. García, S. Martínez, M. Desco, J. Pascau. **Multicamera Optical Tracker Assessment for Computer Aided Surgery Applications**. IEEE Access, vol. 6, pp. 64359-64370, 2018. [doi: 10.1109/ACCESS.2018.2878323]
- R. Moreta-Martinez, D. García-Mato, M. García-Sevilla, R. Pérez-Mañanes, J. A. Calvo, J. Pascau. **Augmented reality in computer-assisted interventions based on patient-specific 3D printed reference**. Healthcare Technology Letters, pp. 1–5.
- M. García-Sevilla, J. De León-Luis, R. Moreta-Martínez, D. García-Mato, R. Pérez-Mañanes, J. A. Calvo-Haro, J. Pascau. **Performance Evaluation to Improve Training in Forceps-Assisted Delivery**. OR 2.0 Context-Aware Operating Theaters, Computer Assisted Robotic Endoscopy, Clinical Image-Based Procedures, and Skin Image Analysis, pp. 69-77

CONFERENCE PROCEEDINGS

- R. Moreta-Martinez, D. García-Mato, M. García-Sevilla, R. Pérez-Mañanes, J. A. Calvo, J. Pascau. **AR in computer-assisted interventions based on patient-specific 3D printed reference**. Augmented Environments for Computer-Assisted Interventions Workshop, MICCAI 2018, Granada, Spain. Oral presentation.
- M. García-Sevilla, J. De León-Luis, R. Moreta-Martínez, D. García-Mato, R. Pérez-Mañanes, J. A. Calvo-Haro, J. Pascau. **Performance Evaluation to Improve Training in Forceps-Assisted Delivery**. OR 2.0 Context-Aware Operating Theaters Workshop, MICCAI 2018, Granada, Spain. Oral presentation.
- M. Tousidonis, D. García-Mato, G. Arenas, E. Bullejos, J. Pascau, S. Ochandiano. **Orbital reconstruction workflow based on desktop 3D printing and open-source navigation system**. European Association for Cranio-Maxillo-Facial Surgery 2018, Munich, Germany. Poster presentation.
- G. Arenas, D. García-Mato, M. Tousidonis, P. Montes, J. Pascau, S. Ochandiano. **Open Source Navigation System and CAD-CAM Technology in Surgical Treatment of Craniosynostosis**. European Association for Cranio-Maxillo-Facial Surgery 2018, Munich, Germany. Oral presentation.
- E. León-Román, P. Sanz-Ruiz, D. García-Mato, I. López-Torres, J. Pascau , J. Vaquero-Martín **Estudio comparativo experimental en rodillas de cadáveres entre la prótesis CCK y bisagra rotatoria**. Congreso Nacional de la Sociedad Española de Cirugía Ortopédica y Traumatología, Valladolid, Spain. Oral presentation.
- D. García-Mato, M. S. Holden, A. Lasso, A. Szulewski, J. Pascau, G. Fichtinger **3D Gaze Tracking for Skill Assessment in Ultrasound-Guided Needle Insertions**. Computer Assisted Radiology and Surgery (CARS) conference 2018, Berlin, Germany. Oral presentation.
- D. García-Mato, S. Ochandiano, M. Tousidonis, R. Moreta-Martínez, M. García-Sevilla, M. Desco, J. Pascau **Orbital Floor Reconstruction Workflow based on 3D Printing and Surgical Navigation**. Computer Assisted Radiology and Surgery (CARS) conference 2018, Berlin, Germany. Poster presentation.
- D. García-Mato, E. León-Román, M. García-Sevilla, P. Sanz-Ruiz, R. Pérez-Mañanes, J. A. Calvo, F. Forriol, M. Desco, J. Vaquero-Martín, J. Pascau **Knee Joint Goniometry using MARG low-cost sensors**. Computer Assisted Radiology and Surgery (CARS) conference 2018, Berlin, Germany. Poster presentation.
- D. García-Mato, A. Lasso, A. Szulewski, J. Pascau, G. Fichtinger. **3D Gaze Tracking based on Eye and Head Pose Tracking**. 10th Hamlyn Symposium on Medical Robotics 2017, London, United Kingdom. Oral + Poster Presentation.
- R. López-Velazco, D. García-Mato, G. Rodríguez-Lozano, M. García-Sevilla, E. Marinetto, D. García-Olmo, M. Desco, M. Ortega-López, J. Pascau. **Image Guidance for Sacral Neuromodulation**. Computer Assisted Radiology and Surgery (CARS) conference 2017, Barcelona, Spain. Oral Presentation.
- D. García-Mato, A. Lasso, A. Szulewski, J. Pascau, G. Fichtinger. **3D Gaze Tracking based on Eye and Head Pose Tracking**. Queen's Graduate Computing Society Conference 2017, Kingston, Canada. Oral Presentation.
- D. García-Mato, E. Marinetto, R. López, M. García-Sevilla, M. Desco, J. Pascau. **Cervical Range of Motion Measurement using MARG Low-Cost Sensors**. Interactive Medical Image Computing (IMIC) Workshop. MICCAI 2016, Athens, Greece. Oral Presentation.
- R. López-Velazco, D. García-Mato, G. Rodríguez-Lozano, M. García-Sevilla, E. Marinetto, D. García-Olmo, M. Desco, M. Ortega-López, J. Pascau. **Navegación quirúrgica de la Neuromodulación de las Raíces Sacras**. Spanish Society of Biomedical Engineering Annual Conference 2016, Valencia, Spain. Oral Presentation.
- V. García-Vázquez, G. Rodríguez-Lozano, R. Pérez-Mañanes, J. A. Calvo, D. García-Mato, M. Cuervo-Dehesa, M. Desco, J. Pascau, J. Vaquero. **Desktop 3D Printing in medicine to improve surgical navigation in acral tumors**. Computer Assisted Radiology and Surgery (CARS) conference 2016, Heidelberg, Germany. Poster Presentation.
- D. García-Mato, E. Marinetto, L. Sanz-Díaz, M. Desco, J.Pascau. **Calibration developments for multicamera optical tracking systems**. Spanish Society of Biomedical Engineering Annual Conference 2015, Madrid, Spain. Poster Presentation.