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Instruct/Multimedia Developer

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Project Experience and Proficiencies**RELEVANT SELECTED 3D HERITAGE DOCUMENTATION AND PRESERVATION EXPERIENCE****Sculptural 3D Documentation**

- The Guardian Angel sculpture, Cathedral of Burgos
- The Altarpiece of the Cathedral of Burgos
- Late Roman Sepulcher in the Cathedral of Astorga, León, Spain)
- Pantocrator Sculpture, 12th century, Alfoz de Quintanadueñas, Burgos, Castile y León
- Romanesque column capital, San Juan de Ortega, Burgos
- Sepulcher of San Juan de Ortega, 12th century, Monastery of San Juan de Ortega
- Carthusian Columns, Tomb of the Kings of Portugal, Cartuja de Miraflores
- Our Lady of La Leche, Tomb of the Kings of Portugal. Cartuja de Miraflores
- White Virgin of the Church of San Andrés de Sorauen, Navarra

3D Modeling for Preservation, Design, and Exhibition

- Section of the Chapel of the Tower of the Palace of Aranjuez. Spanish National Heritage
- Tardajos Sports City (Burgos). Vena River Sports Club
- Building CLESA for major urban planning project. Vena River Construction
- Residential Valderrey (Zamora). Peñalba Real Estate Services
- Zambrana Residence (Valladolid). Torcasa Real Estate Group
- Model of three covers of the Cathedral of Burgos, exhibited in the museum, Cabildo

Measured Drawings (CAD) for Global Heritage Preservation

- Facade of the Museum of Burgos (Spain)
- Facade of the Chapel of Rebolleda (Spain)
- Planimetric Survey of the Debod Temple (Madrid, Spain)
- Castillo de San Marcos, St. Augustine, Florida (USA)
- National Landmark sites 3D Survey at the Castillo de San Marcos and Fort Matanzas, St. Augustine, Florida (USA)
- National Register of Historical Places Location - Jackson Boarding House, Tampa, Florida (USA)
- The National Register Moseley Homestead, Brandon, Florida (USA)

Digitization and 3D modeling of Human Evolution Hominid Fossils Experience (Biological 3D Digital Collections):

- Europe
 - Tautavel (France) Arago XXI
 - Ceprano (Italy)
 - Cueva Guattari, Monte Circeo (Italy)
 - Saccopastore (Italy)
 - Krapina (Croacia)
 - Mauer, Baden (Germany)
 - Gravera Sigrist de Steinheim (Germany)
 - Cueva El Sidrón (Spain)
- Africa
 - Middle Awash (Etiopía)
 - Nariokotome, Lago Turkana (Kenya)

- Rudolphensis, Lago Turkana, (Kenya)
- Forbe's Quarry, (Gibraltar)
- Jebel-Irhoud. (Morocco)
- Esau-Fa, Peninj (Tanzania)
- Swartkrans, Gauteng (South Africa)
- Middle East
 - Wadi Amud (Israel)
 - Qafzeh Cave (Israel)
 - Tabun Cave (Israel)
- China - Indonesia
 - Sinanthropus, (Peking man), Zhoukoudian Beijing (China)
 - Liang Bua, Flores (Indonesia)
 - Sangiran, (Java Central, Indonesia)
 - Mojokerto (Java Oriental, Indonesia)
 - Trinil, (Indonesia)

Relevant Experiences with the Digitization of Global Art, Architecture, and Natural History

- Processing and digitization of Cueva Mayor de Atapuerca, Spain, World Heritage Site. Laboratory of Human Evolution, Department of Historic and Geographic Sciences, University of Burgos
- Processing and digitization of the Pit of Bones, Atapuerca, Spain, World Heritage Site. Laboratory of Human Evolution, Department of Historic and Geographic Sciences, University of Burgos
- Processing and digitization of the Cyclopes Entrance, Atapuerca, Spain, World Heritage Site.
- Mixed Center Research Group of Human Evolution and Behavior, University of Madrid.
- Digitization of reliefs and sculptures for the reproduction of the altar from the 15th century Gothic Cathedral of Pamplona. Pamplona Workshop of Art and Restoration.
- Digitization of the central nave of the 15th century Church of San Pedro en Villalón de Campos, Valladolid Spain. GB Architects, Valladolid.
- Digitization of the façade of the Church of San Pedro in Trigueros del Valle. Restoration and Construction Techniques (TRYCSA), Valladolid.
- Digitization and reconstruction of 103 fragments of the sculpture of Fortuna, in the Roman Theatre of Clunia. Center of Conservation and Restoration of Cultural Property, Burgos.
- Digitization of carved stone panels at the Rock Art Site of Siega Verde, Ciudad Rodrigo. Center of Conservation and Restoration of Cultural Property, Burgos.
- Engineered CAD drawings of the exterior walls Castillo de Leiva (Logroño). Restoration and Construction Techniques (TRYCSA), Valladolid.
- Digitized and 3D modeled the site of Icnitas Sereas (Burgos) (Dinosaurs of the Upper Jurassic-Lower Cretaceous period). Foundation for the Study of the Dinosaurs in Castilla y León.
- Digitized sculptures of "Gigantillos and Gigantones" for sculptor Teodoro Antonio Ruiz.
- Digitized entire complex and engravings at the 9th to 11th century Necrópolis de Revenga. Paleoyas S.L. Zaragoza, Spain.
- Digitization and 3D modeling of 40 archaeological artifacts for entry into a 3D catalog. Paleomanias Replicas and Reproductions, S.L., Burgos, Spain.
- Digitization and 3D modeling of 30 rare marine specimens for entry into an interactive 3D catalog. Florida Fish and Wildlife Research Institute, St. Petersburg, Florida
- Digitization and 3D modeling of ancient, 8th century, Maya carved stone stelae and zoomorphs. Quiriguá Archaeological Ruins, UNESCO World Heritage Site, Izabal, Guatemala.

Skills and Expertise 3D Digital Hardware

Based on nationally recognized proficiency scales, Ms. García has achieved “**advanced**” or “**expert**” levels (scores 4 and 5) in the following hardware (Please see NIH proficiency scale provided below):

- FARO Focus x130 and x330 Laser Scanner, long-range terrestrial laser scanner for architecture and landscapes (<1.5 mm accuracy)
- FARO LS880 Laser Scanner, mid-range terrestrial laser scanner for architecture and landscapes (<2.5 mm accuracy)
- FARO Scan Arms, metrology arm technology, 8-Axis 3D measuring arm for small to medium size objects ($\pm 35 \mu\text{m}$ /micron accuracy)
- Leica Geosystems RTC 360 Laser Scanner, long-range terrestrial laser scanner for architecture and landscapes (<1.5 mm accuracy)
- Minolta VIVID 9i 3D Digitizer, 3D triangulation scanner for small to medium size objects ($\pm 50 \mu\text{m}$ /micron accuracy)
- Artec EVA Structured White Light Scanner, for small objects (0.1 mm accuracy)
- Artec Spider Structured Blue Light Scanner, for fine work (0.05 mm accuracy)
- Artec Leo VCSEL light technology (0.1 mm accuracy)
- NextEngine Ultra HD 3D Scanner (0.127 mm accuracy)
- Metris Krypton k610 ($\pm 40 \mu\text{m}$ /micron accuracy)
- Creaform EXASCAN ($\pm 40 \mu\text{m}$ /micron accuracy)
- Robotic milling machines, KUKA and ABB for replication milling processes that require trajectory planning and control.
- Computed Tomography (CT) Scanners are a form of tomography in which a computer controls the motion of the X-ray source and detectors, processes the data, and produces the image.
- 3D Printers (each has specific advantages for multiple applications and requires specialized data processing and materials)
 - 3D Systems Projet CJP360
 - 3D Systems Projet CJP760 plus
 - Makerbot Replicator+
 - Formlabs Form 2
 - Raise 3D Pro plus

Skills and Expertise in 3D Digital Software

Based on nationally recognized Proficiency Scales, Ms. García has achieved “**advanced**” or “**expert**” levels in the following software programs (scores 4 and 5) (Please see NIH proficiency scale below):

- Geomagic Studio 2015, comprehensive reverse engineering software, combines history-based CAD with 3D scan data processing
- Geomagic Wrap 2017, powerful tool for transform 3D point cloud scan data and imported files into 3D polygonal and surface models.
- Geomagic Verify, inspection software for contact and non-contact measurement with CAD intelligence to define and verify alignments, dimensions, and tolerances.
- Geomagic Design X, comprehensive 3D Scan-To-CAD reverse engineering software for creation of feature-based, editable solid models compatible with existing CAD software.
- Materialise Mimics V19, advanced segmentation tool for specific-device design or image-based research and development.

- Artec Studio Professional V10/V11/V12/V13, advanced data capture and processing algorithms
- Cimatron eV13
- Roboris CNC Software, IRBCAM
- Leica TLS software
- Leica JetStream ProjectVault
- Leica Cyclone and CloudWorx
- Faro Scene V5/V6/V7/2018
- Faro Point Sense / Virtusurv v18
- Cloud Compare V2.9
- Bentley PointTools
- City Engine 2016.1
- Autodesk ReMake
- Autodesk ReCap
- Autodesk AutoCad 1993 to 2019
- Autodesk Maya 2010 to 2019
- Pixologic Zbrush 4r8/2018
- 3D Print Software of Makerbot and 3D Systems Cube 3D Printers
- Adobe After Effects cc 2017
- Adobe Lightroom cc 2017
- Color Checker Passport Color Profile
- Adobe Muse cc 2017
- Adobe Photoshop cc 2017
- Adobe Illustrator
- Digital artistic modeling
- Rapid prototyping
- Unity
- Sketchfab

Competencies Proficiency Scale Used in Determination

The National Institute of Health (NIH) Proficiency Scale is an instrument used to measure one's ability to demonstrate competency on the job. The scale captures a wide range of ability levels and organizes them into five steps; from "Fundamental Awareness" to "Expert". This scale serves as the guide to understanding the expected proficiency level of top performers at each grade level.

Score	Proficiency Level	Description
1	<i>Fundamental Awareness</i> (basic knowledge)	You have a common knowledge or an understanding of basic techniques and concepts. <input type="checkbox"/> Focus is on learning.

2	Novice (limited experience)	<p>You have the level of experience gained in a classroom and/or experimental scenarios or as a trainee on-the-job. You are expected to need help when performing this skill.</p> <ul style="list-style-type: none"> • Focus is on developing through on-the-job experience; • You understand and can discuss terminology, concepts, principles, and issues related to this competency; • You utilize the full range of reference and resource materials in this competency.
3	Intermediate (practical application)	<p>You are able to successfully complete tasks in this competency as requested. Help from an expert may be required from time to time, but you can usually perform the skill independently.</p> <ul style="list-style-type: none"> • Focus is on applying and enhancing knowledge or skill; • You have applied this competency to situations occasionally while needing minimal guidance to perform successfully; • You understand and can discuss the application and implications of changes to processes, policies, and procedures in this area.
4	Advanced (applied theory)	<p>You can perform the actions associated with this skill without assistance. You are certainly recognized within your immediate organization as "a person to ask" when difficult questions arise regarding this skill.</p> <ul style="list-style-type: none"> • Focus is on broad organizational/professional issues; • You have consistently provided practical/relevant ideas and perspectives on process or practice improvements which may easily be implemented; • You are capable of coaching others in the application of this competency by translating complex nuances relating to this competency into easy to understand terms; • You participate in senior level discussions regarding this competency; • You assist in the development of reference and resource materials in this competency.
5	Expert (recognized authority)	<p>You are known as an expert in this area. You can provide guidance, troubleshoot and answer questions related to this area of expertise and the field where the skill is used.</p> <ul style="list-style-type: none"> • Focus is strategic; • You have demonstrated consistent excellence in applying this competency across multiple projects and/or organizations; • You are considered the "go to" person in this area within outside organizations; • You create new applications for and/or lead the development of reference and resource materials for this competency; • You are able to diagram or explain the relevant process elements and issues in relation to organizational issues and trends in sufficient detail during discussions and presentations, to foster a greater understanding among internal and external colleagues and constituents.
<p>https://hr.od.nih.gov/workingatnih/competencies/proficiencyscale.htm</p>		