Mediwave

A Guide For Diverse Students Seeking Impactful Internship Placements.

PFE BOOK.

Academic year 2026

Get Started

About Us.

Mediwave is a visionary medical technology company. We push the boundaries of healthcare with expertise in immersive therapies, advanced sterilization, and medical data management, creating products that meet today's needs and anticipate tomorrow's challenges.

Areas of Expertise.

Whether you are looking to enhance productivity, improve efficiency, or stay ahead of technological advancements, we've got you covered.

Software Development and Integration in the medical sector

Unified Communications and Collaboration

Network Optimization Services Managed IT Services

Our Projects

The following disciplines are required for the 2026 internship, according to our PFE handbook

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AI — Artificial Intelligence & Data Science

Discipline 01

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Reference code : ECG-HD-001

ECG DIGITIZATION – HYBRID AI (IMAGE PROCESSING + DEEP LEARNING)

Project Summary:

You will build an AI system that converts paper ECG scans into clean digital signals using image processing and deep learning.

Missions:

- Process real ECG images (filters, binarization, segmentation).
- Train CNN / RCNN models to extract ECG curves.
- Reconstruct digital signals from images.
- Integrate the model into Medilink API.

Required Skills:

Python, TensorFlow/PyTorch, OpenCV, Image Processing, Data Augmentation.

Reference code : VPC-AI-01

VIRTUAL PRE-CONSULTATION AI AGENT (LLM + RAG)

Project Summary:

Build an intelligent chatbot that interviews patients before their consultation, asks specialty-based questions, summarizes the conversation and sends a structured pre-consultation report to the doctor.

Missions:

- Build RAG pipelines for medical Q&A.
- Integrate specialty-based question trees.
- Automatically generate medical summaries.
- Connect the agent to Medilink patient records.

Required Skills:

LLMs, RAG, Python, Azure OpenAI, LangChain, MongoDB, APIs.

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Reference code : STT-MED-01

SPEECH-TO-TEXT FOR MEDICAL NOTES

Project Summary:

Develop a speech recognition system that transforms doctor voice consultations into structured medical notes stored directly in Medilink.

Missions:

- Implement Whisper / transformer-based STT.
- Clean and structure medical texts.
- Detect medical terminology.
- Integrate into patient medical records.

Required Skills:

Audio Processing, NLP, Python, Pytorch,Transformers, SpeechRecognition, Google Cloud, APIs.

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Reference code : AI-DDI-V1

AI-DRIVEN DRUG INTERACTION DETECTOR

Project Summary:

Create an NLP-based system that analyzes prescriptions and alerts doctors about dangerous drug interactions in real time.

Missions:

- Build a drug interaction knowledge graph.
- Extract drug names from prescriptions.
- Automatically raise alerts in the UI.
- Integrate with doctor prescribing interface.

Required Skills:

NLP, Python, Knowledge Graphs, Transformers.

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Reference code : VF-EMO-AI

EMOTION & STRESS DETECTION FROM VOICE + FACE ANALYSIS

Project Summary:

Build an AI model able to detect stress or anxiety levels using facial cues and vocal tone during teleconsultations.

Missions:

- Collect & preprocess audio/video samples.
- Extract MFCC & facial features.
- Train stress/emotion classifiers.
- Integrate into Medilink teleconsultation UI.

Required Skills:

ML, Audio Processing, Computer Vision, Python, OpenCV, MFCC, TensorFlow/PyTorch.

Reference code : MIA-AI-01

AI-BASED MEDICAL IMAGE ANALYSIS (X-RAY / CT / MRI)

Project Summary:

Develop a DNN model capable of detecting pathologies in medical imaging and assisting radiologists inside the Medilink diagnostic viewer.

Missions:

- Prepare imaging datasets.
- Train CNNs or segmentation models (U-Net).
- Build inference API.
- Design a diagnostic viewer.

Required Skills:

Deep Learning, CNNs, Image Processing,TensorFlow, Pytorch, CNN, Image Segmentation.

Reference code : MHTE-AI01

MULTILINGUAL HANDWRITTEN TEXT EXTRACTION (ARABIC / FRENCH / ENGLISH)

Project Summary:

Build an OCR+LLM system that extracts handwritten medical notes in 3 languages and converts them into structured text.

Missions:

- Train/Finetune OCR models.
- Handle multiple scripts & directions.
- Structure output into medical fields.
- Integrate into doctor dashboards.

Required Skills:

OCR, NLP, Transformers, Python.

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DEVELOPMENT — Web, Backend & Applications

Speciaty 02

Reference code : TCM-WRSM-01

TELECONSULTATION MODULE (WEBRTC + SECURE MESSAGING)

Project Summary:

Build the full teleconsultation environment used by doctors and patients:
Video calls • Audio • Secure chat • File sharing • Medical confidentiality.

Missions:

- Implement WebRTC for HD video consultations.
- Build encrypted chat & document upload.
- Sync with patient and doctor profiles.
- Integrate connection quality monitoring.

Required Skills:

ReactJS, React Native WebRTC, NestJS, Socket.io, Security Basics.

Reference code : TEM-DDC-01

TELE-EXPERTISE MODULE (DOCTOR-TO-DOCTOR COLLABORATION)

Tech : ReactJS, NestJS, WebSockets, MongoDB

Project Summary:

Develop a platform where doctors can request second opinions, share cases securely, and discuss diagnoses.

Missions:

- Create medical case-sharing workflows.
- Implement secure peer-to-peer communication.
- Build note exchange and case discussion threads.
- Integrate role-based access control.

Required Skills:

ReactJS, NestJS, WebSockets, JWT/Auth, React Native.

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Reference code : WR-01

VIRTUAL WAITING ROOM

Tech : ReactJS, NestJS, Redis, WebSockets

Project Summary: A smart digital waiting room that allows patients to queue before joining their consultations with real-time updates.

Missions:

- Build real-time queue status.
- Manage doctor availability logic.
- Notify patients when they are next.
- Show live instructions inside the UI.

Required Skills: ReactJS, React Native, WebSockets, NestJS, State Management.

Reference code : RTCW-DOC-01

REAL-TIME COLLABORATION WORKSPACE FOR DOCTORS

Project Summary:

A shared workspace where multiple doctors can collaborate live: annotate images, co-edit notes, review medical cases.

Missions:

- Build multi-user note editor.
- Real-time sync of annotations on images.
- Display presence indicators and history.
- Integrate with patient records.

Required Skills:

ReactJS, React Native, WebSockets, Collaborative Editing, NestJS.

Reference code : BMR-BC-01

BLOCKCHAIN-BASED MEDICAL RECORD SYSTEM

Project Summary: A blockchain-based layer that ensures integrity and tamper-detection for critical patient data.

Missions:

- Create smart contracts for medical records.
- Manage access control via blockchain identities.
- Build verification endpoints.
- Integrate with Medilink's record system.

Required Skills: Solidity, Ethereum, Web3.js, Backend APIs.

Reference code : ESDP-01

E-SIGNATURE FOR DIGITAL PRESCRIPTIONS (ESIGN)

Project Summary: Develop a secure digital e-signature system allowing doctors to sign prescriptions legally within Medilink.

Missions:

- Implement secure certificate generation.
- Build signature flow in doctor UI.
- Generate tamper-proof documents (hashing).
- Add verification endpoint for pharmacies.

Required Skills: Cryptography, PKI, ReactJS, React Native, NestJS, Security, Cryptography.

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UI/UX & INTERACTION DESIGN

Speciaty 03

Reference code : ADUI-MED-01

ADAPTIVE UI FOR MEDICAL ROLES

Project Summary:

Design role-based interfaces for doctors, nurses, admins, and patients — each with different workflows and privileges.

Missions:

- Research medical role workflows.
- Create adaptive UI layouts.
- Define modular design system for Medilink.
- Test with real users.

Required Skills:

Figma, Adobe PS, Adobe Illustrator, Adobe XD.

Reference code : DSD-MED-01

DYNAMIC SPECIALTY-BASED DASHBOARDS

Project Summary:

Create dashboards tailored for each medical specialty (cardiology, radiology, dermatology...).

Missions:

- Study specialty workflows.
- Prototype dashboards with appropriate visuals.
- Create reusable components for dev team.

Required Skills:

Figma, Adobe PS, Adobe Illustrator, Adobe XD.

Reference code : ADV-DASH-01

ADVANCED DATA VISUALIZATION DASHBOARD

Project Summary:

Design clean and intuitive data visuals for health analytics, AI insights, trends, and anomalies.

Missions:

- Create data-rich components.
- Define visual hierarchy.
- Work with dev team to ensure feasibility.

Required Skills:

Figma, Adobe PS, Adobe Illustrator, Adobe XD.

Reference code : BVID-COM-01

BRAND VISUAL IDENTITY & COMMUNICATION DESIGN

Tech :

Project Summary:

ohesive brand identity with digital and print assets, including social media posts, flyers, and brochures.

Missions:

- Create logo, color palette, typography, and icons.
- Design social media templates and print materials.
- Ensure visual consistency across all touchpoints.

Required Skills:

Figma, Adobe PS, Adobe Illustrator, Adobe XD.

BUSINESS, GROWTH & MARKETING

Speciaty 04

Reference code : DMS-01

DIGITAL MARKETING STRATEGY

Project Summary: Prepare the full digital marketing strategy for Medilink in Tunisia and internationally.

Missions:

- Market analysis.
- SEO/SEM planning.
- Ads and acquisition funnels.
- KPIs dashboard.

Required Skills: Marketing, SEO, Analytics, Content Strategy.

Reference code : MMPS-01

MONETIZATION MODEL & PARTNERSHIP STRATEGY

Project Summary:

Define revenue streams (premium, partnerships, sponsors) and build strategic collaboration frameworks.

Missions:

- Benchmark markets.
- Build pricing models.
- Create partnership roadmap.

Required Skills:

Business analysis, Strategy, Financial modeling.

Reference code : BICP-01

BRAND IDENTITY & COMMUNICATION PLAN

Project Summary: Define Medilink's full branding: colors, typography, tone, communication templates.

Missions:

- Create brand book.
- Build communication guidelines.
- Prepare media kit.

Required Skills: Branding, Design, Communication.

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IoT & SMART HEALTH SYSTEMS

Speciaty 05

Reference code : IOT-RPM-01

IOT DEVICE INTEGRATION & REMOTE PATIENT MONITORING

Project Summary:

Integrate wearable sensors (SpO_2, HR, ECG...) and create a real-time vitals dashboard.

Missions:

- Collect live data from sensors.
- Build medical alerts.
- Display vitals in a web dashboard.

Required Skills:

IoT, ReactJS, NestJS, MQTT.

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Cybersecurity

Discipline 01

Reference code : CSDSP-01

CYBERSECURITY / DEVSECOPS PROJECT — SECURE MEDICAL PLATFORM ARCHITECTURE

Project Summary:

Build the security layer of Medilink — including secure APIs, vulnerability scanning, penetration testing, and DevSecOps pipelines

Missions:

- Implement OWASP Top 10 protections.
- Automate scans in CI/CD (SAST + DAST).
- Harden servers & API authentication.
- Simulate attack scenarios.

Required Skills:

Security, DevOps, API Security, OWASP, Docker, Kubernetes, CI/CD Security, Pentesting, Jenkins, JWT, JWK, OAuth2.

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Quality Management

Discipline 01

Reference code : IMS-Q-01

QUALITY / IMS – INTEGRATED MANAGEMENT SYSTEM PROJECT

Project Summary: Develop the internal IMS for MediLink including quality processes, documentation, compliance, and continuous improvement.

Missions:

- Map Medilink processes.
- Build quality documentation.
- Define KPIs & audits.
- Implement ISO-based workflow.

Required Skills: Quality management, Documentation, Process design.

How to apply ?

Just follow the next simple steps to apply for an internship with our company.

⚠ Where to apply

Submit through the form:
https://forms.gle/nWjHKSZrGbdiNnDL8

Step 1 :
Choose up to 3 projects

Step 2 :
Apply for the chosen projects

Step 3 :
Attend the interviews

Step 4 :
Receive your validation

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THANK YOU.

We are excited to have you on our team. If you need any further information, please feel free to contact us.

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