PEIRA SCRIPTING SERVICES

Advanced engineering support for instrument automation and High Throughput Systems

Despite their performance, automated lab systems often need advanced programming expertise. The Peira team brings extensive knowledge of these systems and operational lab experience, allowing lab teams to focus on experiments while Peira handles advanced scripting and first-line system failure support.

LIQUID HANDLING

Programming Liquid Handlers:
- **Hamilton Venus:** A versatile liquid handling platform used for various laboratory automation tasks.
- **Biomek i Series:** Known for its flexibility and precision in liquid handling.
- **Tecan Evo and Tecan Fluent:** Advanced liquid handling systems designed for high-throughput workflows.
- **Cybio Felix:** A compact and flexible liquid handling platform suitable for a wide range of applications.
- **And others:** Including various other models used in laboratory automation.

Pipetting Protocols:
- **Dilutions:** Creating solutions of varying concentrations by adding solvent to a solute.
- **Transfers:** Moving liquids from one container to another.
- **Hit Picking:** Selecting specific wells or samples based on certain criteria.
- **Combinations of these protocols:** Integrating multiple pipetting steps into a single workflow.
- **Volume and CV optimization:** Ensuring precise and consistent liquid handling by optimizing volumes and coefficient of variation (CV).

Integrated Devices:
- **Plate storage and incubators:** For storing and incubating plates under controlled conditions.
- **Sealer and peeler:** For sealing and peeling plate covers to protect samples.
- **Shaker:** For mixing samples uniformly.
- **Heater and cooler:** For maintaining samples at specific temperatures.
- **Readers:** For detecting and measuring various sample properties.

Enhancing Pipetting Protocols with Scripting:
- **HSL (Hamilton):** Hamilton scripting language for customizing liquid handling protocols.
- **VBScript (Tecan):** Scripting language used with Tecan systems for protocol customization.
- **HTML, VBScript, JScript (Biomek):** Various scripting languages used with Biomek systems to enhance pipetting protocols.

Data Logging:
- Recording and tracking data generated during automated processes for analysis and quality control.
- Integration with **LIMS** systems.

Automated Systems:
- **Thermo Momentum:** Software for automating laboratory workflows and integrating various devices.
- **HighRes Cellario:** Automation software for managing and controlling laboratory instruments.
- **PAA Overlord:** Software used for controlling and maintaining PAA automation platforms.

Enhancing Automation Protocols with Scripting:
- **C# (Cellario):** Using C# scripting to customize and enhance automation protocols in Cellario.
- **Windows Shell Scripting (Momentum):** Using shell scripts to automate tasks and workflows in Momentum.

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PEIRA SCRIPTING SERVICES

OUR EXPERTISE

Peira has a deep understanding of the following domains.

- Pharmaceutical development
- Analytical research
- Lab & synthesis reactors
- High throughput systems
- Lab automation
- Various scientific domains such as un vitro, in vivo, neuroscience, oncology or toxicology

OUR SKILLS

- Liquid handlers; Hamilton, Biomek, Tecan, Thermo Fisher, …
- Integrated Lab Systems; Thermo Momentum, HighRes Cellario, PAA Overlord, ….
- On-site electrical installations and service
- Automation; robotics, Siemens PLC, Fanuc, Kuka, …
- Coding; Javascript, Python, Data engineering, …

IN-HOUSE CAPACITY

- Mechatronic engineering
- Rapid prototyping shop
- Mechatronic lab
- CNC shop
- Machine assembly shop

LAB AUTOMATION

HighRes

- **Cellario:** Software used for HighRes automation platforms. It is mainly used for reteaching robot locations but is also used for troubleshooting issues by addressing devices individually and viewing logs.
- **Tundra and SteriStore:** Incubators that we work on both mechanically (replacing valves and cylinders) and software-wise by connecting directly to the store to control and adjust parameters using commands. Once connected, we can control the stores and adjust parameters using commands.

Thermo Fisher

- **Cytomat:** Incubators that are commonly used in automation platforms. We use the Thermo service software "CytoControl" to interact with the Cytomat in various ways (e.g., commands), clearly see the status of sensors, test barcode readers, and adjust parameters.
- **Momentum:** Software used for Thermo automation platforms. It is mainly used for creating test processes to test certain movements or functions.
- **Spinnaker:** Robots used in Thermo automation platforms. We use the "MoverTeach" software to test the locations and movements of the robot and reteach these locations when necessary.

Hamilton

- **Verso Store**: Automated sample storage systems for flexible and efficient freezer storage.
- **Vantage**: Flexible liquid handling system for complex automation tasks.
- **Decapper**: Automated device for removing and applying caps on sample tubes.
- **Q20**: Part of the Verso Q-Series, offering efficient automated sample storage.

PAA: Automation Platforms

- **Mitsubishi Robots:** Most PAA platforms use various types of Mitsubishi robots. These robots use the software "RT ToolBox3." In the software, we can view and test all scripts that control the robot's movements. We can also create simple scripts ourselves to test certain movements. This software is also used during the maintenance of PAA platforms to read data and make backups.
- **Overlord:** Software used for PAA automation platforms. It is almost exclusively used during the maintenance of these platforms to test certain functions, adjust parameters, read data, and make backups.