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From: SoftInWay Inc.

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Educational Porgrams

"Axial Turbine Flow Path Design and Optimization" Training Course

SoftInWay, Inc., the developer of software products for turbine design, including *AxSTREAM™*, the powerful software suite that encompasses the complete engineering process of gas/steam axial turbine flow path, is pleased to invite engineers to a new session of its education course: "Axial Turbine Flow Path Design and Optimization". The session will be held February 8-10, Burlington, MA.

This practice- and design-oriented course is based on over 400 years of experience in turbomachinery design and engineering by SoftInWay's team. Spanning a concepts-to-details process of axial turbine design/retrofitting, the course will enrich engineers with application-oriented guidelines for new / existing turbine flow path designs along with design techniques for the entire flow path and its optimization, including turbine flow path CFD analysis.

For registration and details, please click here.

AxSTREAM in University Programs

SoftInWay, Inc. announces the integration of AxSTREAM in various education courses. For example, the department of Mechanical Engineering at The Johns Hopkins University has chosen to include AxSTREAM in their Jet and Rocket Propulsion Course.

More>>

Openings in SoftInWay

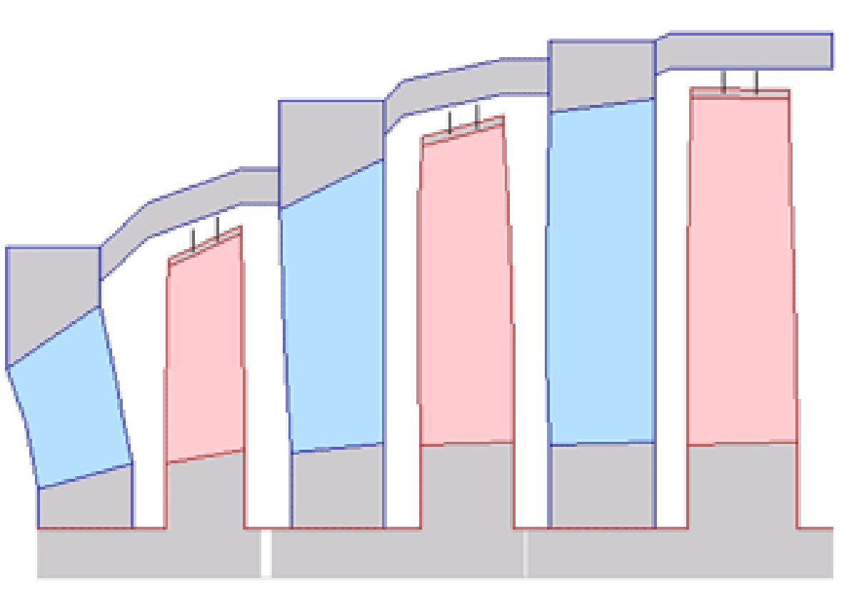
We currently invite you to explore the vacancies that the links below are leading to:
CAE Software Developer
Project Manager, Engineering Consulting
Sales Engineer/Project Manager

Join a strategically focused and highly motivated team involved in Scientific, Mechanical Engineering, Design Consulting and Software Development. You will have an opportunity to work on multiple projects in a very flexible, friendly and challenging environment.

AxSTREAM Validation

AxSTREAM™ Validation Aspects: OEM Aviation Gas Turbine

SoftInWay proceeds on the way of its leading product *AxSTREAM™* capabilities validation.



This time, a pilot OEM turbine of a line of axial gas turbines was chosen as the object of AxSTREAM's solver simulation capabilities to validate its robustness and effectiveness for industry demands.

More >>

AxSTREAM Online Presentation

An opportunity to view *AxSTREAM™* capabilities in Turbine Design at a glance!

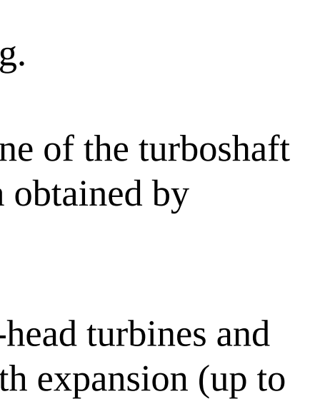
This presentation gives an overview of ***AxSTREAM™*** software suite capabilities in axial turbines conceptual design and optimization. It features a viewer-oriented approach providing a spectrum of unique ***AxSTREAM™*** design and optimization functions from concept to 3D model including the program's theoretical basics that allow for rapid turbomachinery prototype designs.

View >>

Welcome to our Science Club!

We will be glad to publicize your papers in mechanical engineering in our Science Club. Please submit your articles to lm@softinway.com

Here you will find an array of articles authored by our scientists and colleagues from academia and dedicated to various aspects of turbomachinery research, design, simulation and modernization, heat transfer, mechanical engineering etc.



See articles >>

Turbomachinery design with *AxSTREAM*

AxSTREAM VALIDATION ASPECTS: OEM AVIATION GAS TURBINE

SoftInWay has carried out AxSTREAM validation against the results extracted from OEM axial gas aviation turbine testing.

An aviation full-scale gas turbine purposed for numerical simulation with AxSTREAM is a high-loaded low pressure turbine of the turboshaft engine. One of the study objectives was to perform 1D, 2D, and 3D modeling and validate some results versus the test data obtained by experiment.

The turbine under study featured low flow rate coefficients at high load factors, (Figure 1, left). It belongs to so called low-head turbines and this entails its design and aerodynamic peculiarities such as transition duct of complicated shape at inlet; significant gas path expansion (up to 30 deg); comparatively wide 1st stage diaphragm with height to axial chord ratio h/bx~1.2; high-load stages with 1st and 2nd stages loading factor μ>2.5.

Within the frame of the study, meanline and axisymmetric analyses were performed using AxSTREAM software. General cascade characteristics such as chords, metal and gauging angles, gap and clearing dimensions, operational conditions were taken as initial data for analyses. Resulted was a simplified turbine model shown in Figure 1, right. Principally, AxSTREAM possesses ample capabilities for axial turbine aerodynamic analysis, but in this case, 1D and 2D computations completely met the objectives of the study that was reduced to modeling results validation against the test data obtained for static pressure in the flow path gaps.

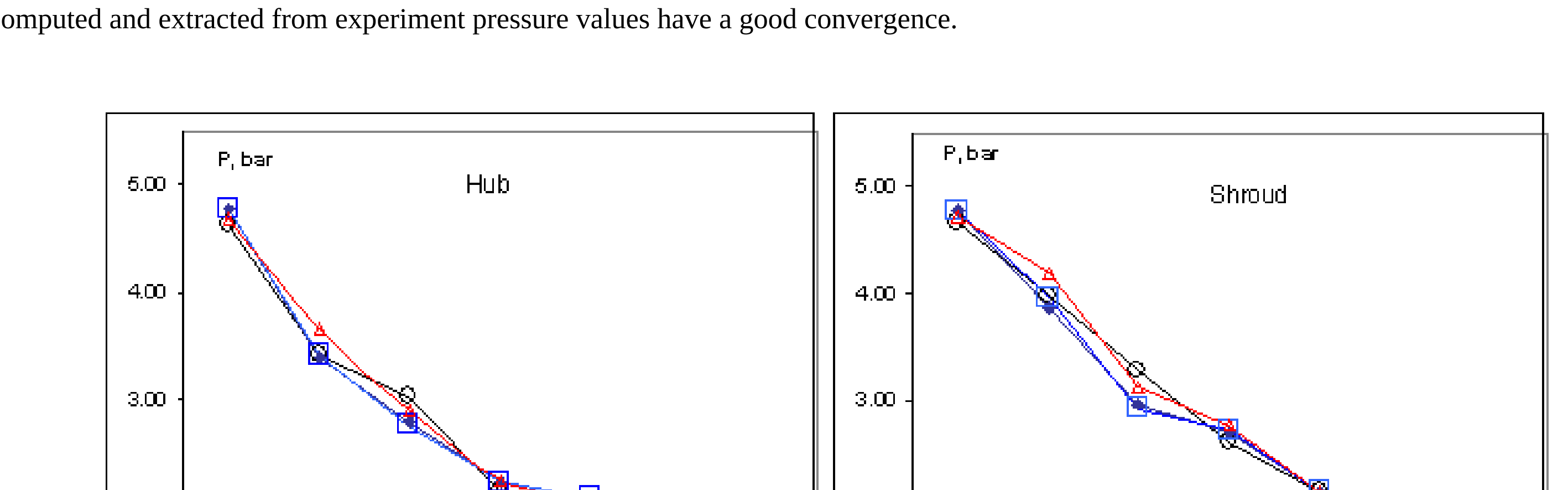


Figure 1. Pilot turbine layout (left) and its model obtained with AxSTREAM (right)

The sample of the AxSTREAM, CFX-5.7 computation results and test data comparison is presented in Figure 2. The figure show that computed and extracted from experiment pressure values have a good convergence.

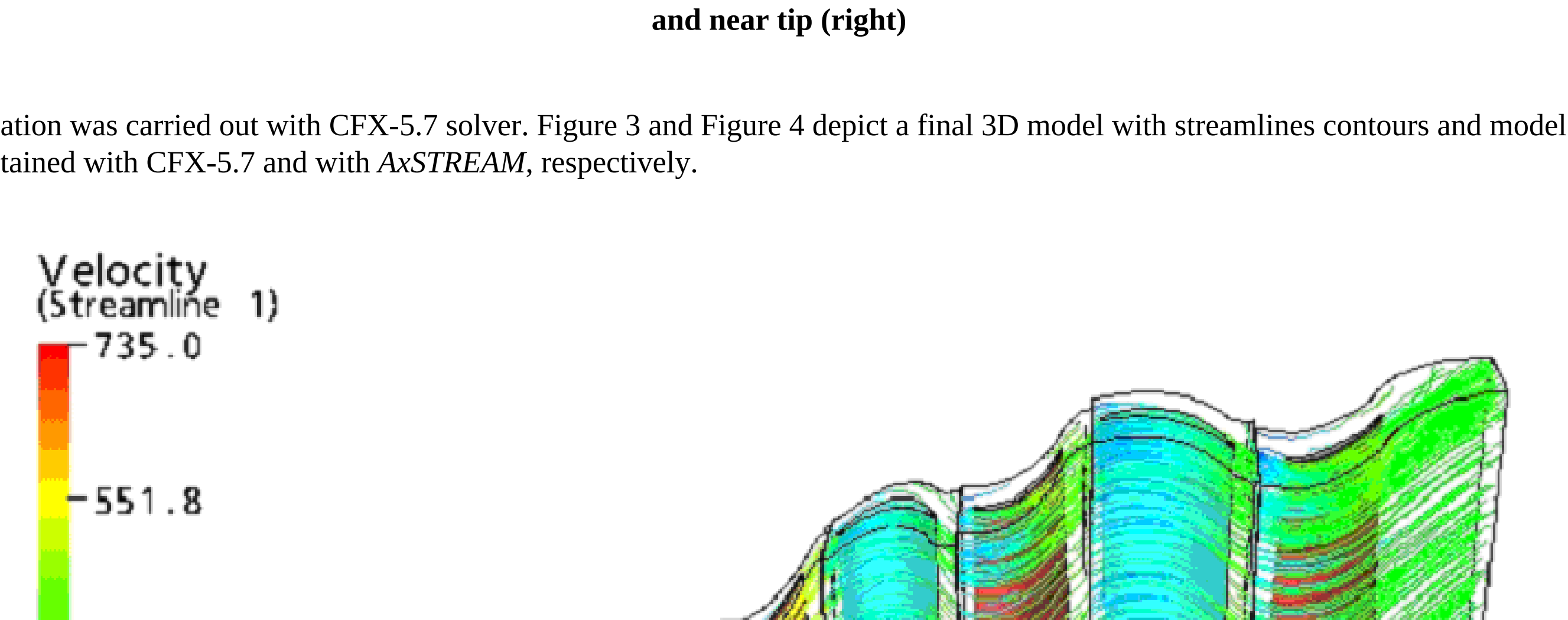


Figure 2. Experimental and computed with AxSTREAM and with CFX5.7 static pressures in axial gaps near hub (left) and near tip (right)

3D simulation was carried out with CFX-5.7 solver. Figure 3 and Figure 4 depict a final 3D model with streamlines contours and models of 3 stages obtained with CFX-5.7 and with *AxSTREAM*, respectively.

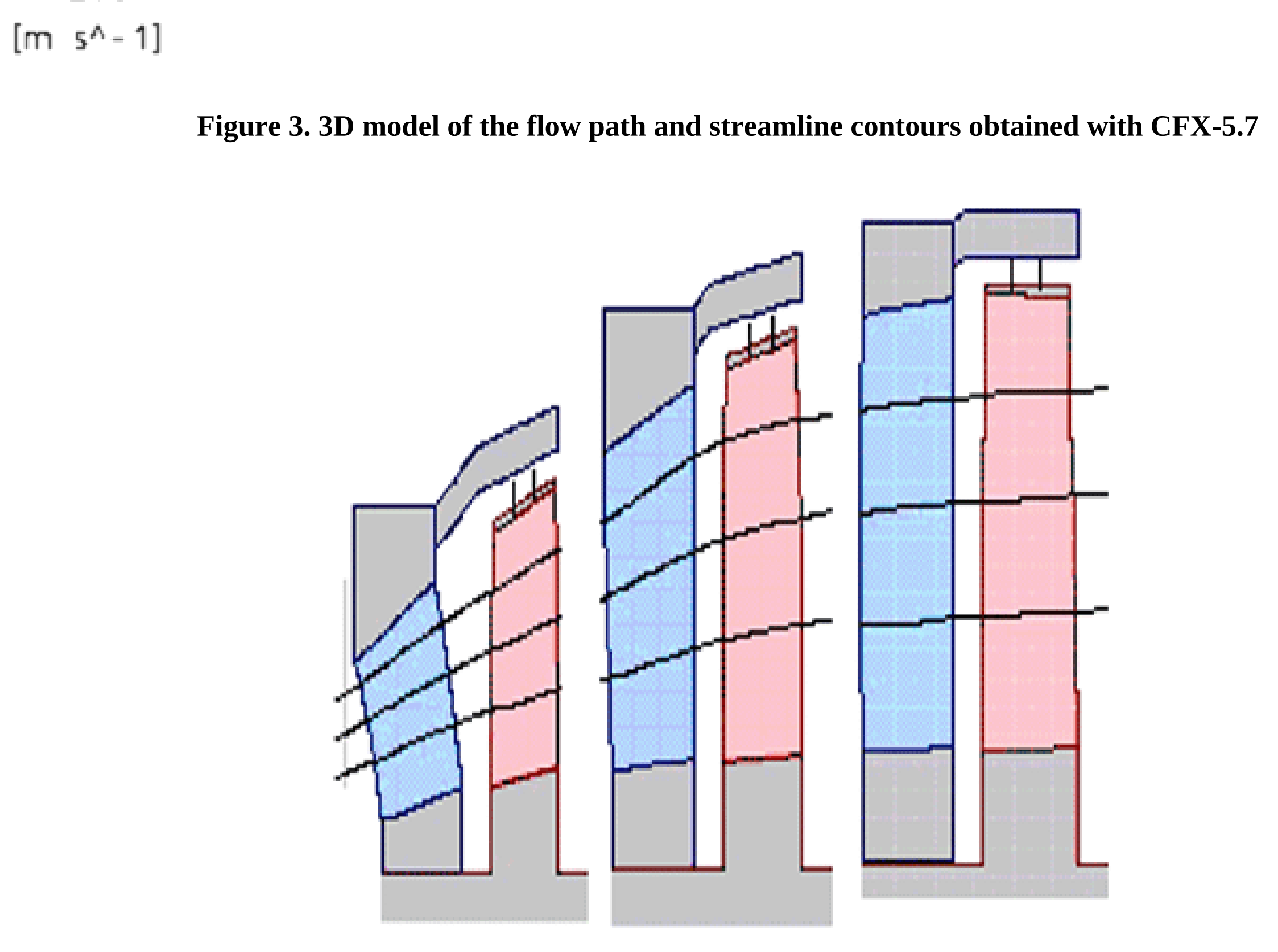


Figure 3. 3D model of the flow path and streamline contours obtained with CFX-5.7

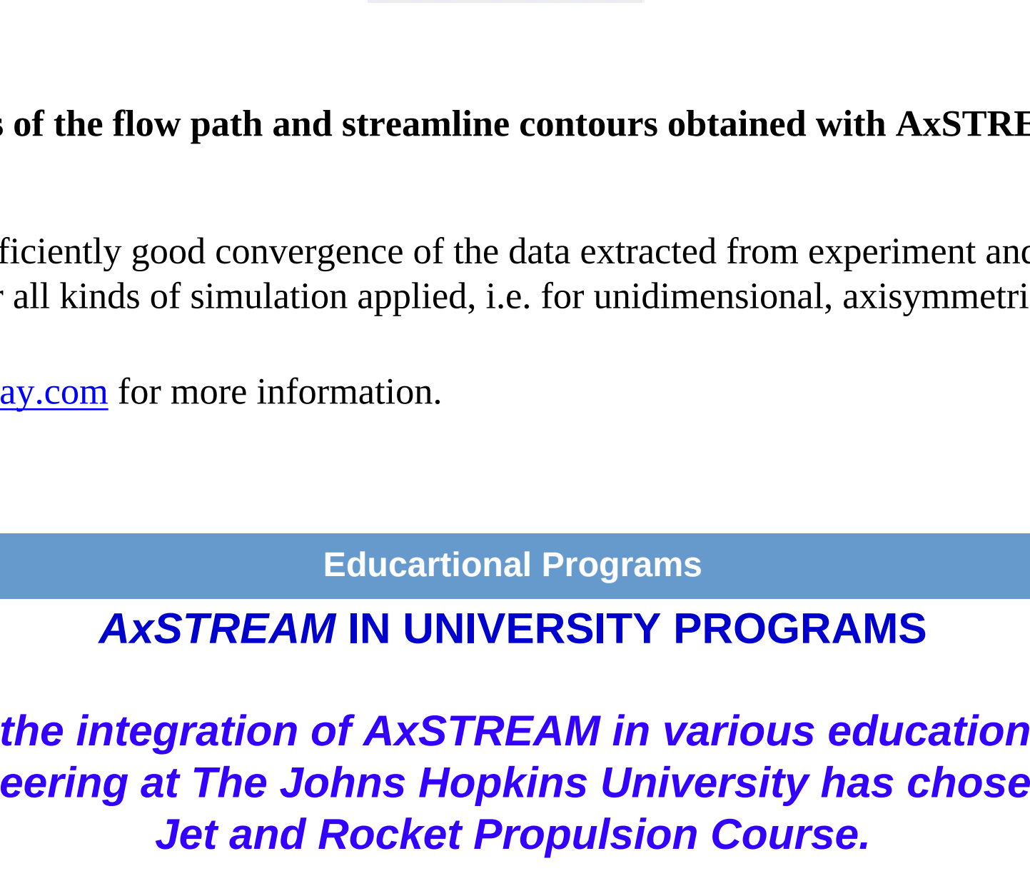


Figure 4. Models of the flow path and streamline contours obtained with AxSTREAM for 3 stages

Figure 2 explicitly demonstrates a sufficiently good convergence of the data extracted from experiment and computed with the help of AxSTREAM and CFX-5.7 solvers for all kinds of simulation applied, i.e. for unidimensional, axisymmetric and three-dimensional modeling.

Please address tech_support@softinway.com for more information.

Educartional Programs

AxSTREAM IN UNIVERSITY PROGRAMS

SoftInWay, Inc. announces the integration of AxSTREAM in various education courses. For example, the department of Mechanical Engineering at The Johns Hopkins University has chosen to include AxSTREAM in their Jet and Rocket Propulsion Course.

'SoftInWay offered us a powerful tool axial gas/steam turbine design that can be seamlessly integrated into our learning process as an effective assistant for students and teachers" - says Prof. Joseph Katz, the course instructor.

The educational version of AxSTREAM enables the students to examine the effect of varying flow parameters on the overall performance of the turbomachine, and in doing so enhance the theoretical topics covered in the course - Prof. Katz added. - "The students gain some practical skills, and are exposed to the basic concepts of real turbine flow-path design. AxSTREAM enables the students to examine the relationships between path parameters and blade shapes, making it a very useful supporting educational tool."

SoftInWay distributes AxSTREAM to educational entities worldwide. SoftInWay is a company deeply committed to future engineers' solid knowledge of turbomachinery design.

The AxSTREAM™ software suite empowers designers to apply a concurrent development approach while solving coupled problems of performance, reliability, operating life, and low-cost design. The software package can be downloaded for evaluation. Please request by writing to tech_suppot@softinway.com.

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Openings in SoftInWay

Welcome to join SoftInWay Incorporate! We invite you to explore the vacancies presented below:

CAE Software Developer

This individual should have experience in development of complex engineering software projects and a strong background in CAE tools. Excellent understanding of FEA and / or CFD methods and issues. It is essential that the individual has a strong desire to learn and explore new technologies and is able to demonstrate good problem solving skills.

Requirements:
• B.Sc., or M.Sc., or Ph.D. in Mechanical Engineering, Applied Math or Physics with respectfully 5+, or 3+ , or 0-1 years of experience in engineering software development (C, C++, FORTRAN);
• Thorough knowledge of FEA and / or CFD methods;
• Hands on experience with at least one of the following tools: ANSYS, MSC.Software, ABAQUS, I-Deas, CATIA, Fluent, or CFX.
Experience with SolidWorks and / or Pro/E is a plus.

Project Manager, Engineering Consulting

This individual will be responsible for all-round technical preparation and evaluation of project proposals in FEA-based CFD, Heat Transfer, Stress-Strain areas. Recommending improvements, the project's technical issues coordination including problems' review, sophisticated model description, precise boundary conditions evaluation, and gathering and analysis of other data required for providing further non-stop development process.

Also responsible for building and maintaining development schedules and fulfilling project deliverables on time, from inception to client sign-off. Beyond this, the candidate needs to have very sharp analytical skills, which s/he will use through the project life cycle, including detailed pre-development proposal analysis, projects feasibility estimation, and user requirements analysis.

Requirements:

- Masters Degree or Bachelors in Mechanical Engineering with significant related experience at Power Generation Machinery oriented companies like GE, Pratt & Whitney, Rolls-Royce, Alstom. Computed Science Degree is desirable.
- 5+ years of complex Mechanical Engineering project management, engineering application development, design, and implementation experience.
- Experience in FEA-contained packages' implementation like ANSYS and/or similar toolkits is required.
- Principle knowledge in CFD, Heat Transfer, Stress-Strain, Machine Design is extremely appreciated.
- Must be strongly focused and extremely organized.
- Proven experience in writing specifications, quality assurance, project complexity, labor effort estimation, and risk analysis skills.
- Exceptional oral and written communications skills are essential.
- PMI certification is a plus.

Sales Engineer/Project Manager

The essential job function of this person is business development and sales of engineering/software development consulting services including:
- forecast development to achieve national sales goals,
- developing and implementing a strategic sales plan to achieve national sales goals;
- identify, close and maintain key accounts;
- provide information to marketing to improve products and profitability;
- monitor and assess major competitors' activities and products.
The person will perform sales work inside and outside in support of SoftInWay's engineering services for diverse industries including Aerospace, Power Generation, Automotive, Energy, Petrochemical, Utilities, Gas, etc. He/She will prepare proposals or service contracts for SoftInWay's engineering services with deep understanding of customer requirements and company's team Design and Engineering abilities in FEA-based CFD, Heat Transfer, and Structural applications development. Coordinate and schedule marketing activity. Serve as Project Manager for various projects, both temporary and ongoing.

Requirements:
• Minimum 4 year Degree in Mechanical Engineering or related areas with significant related experience at Power Generation Machinery oriented companies like GE, Pratt & Whitney, Rolls-Royce, Alstom.
• 5 - 8 years experience of surpassing sales quotas in selling consulting services to C-level executives in engineering and scientific.
• Principle knowledge in CFD, Heat Transfer, Stress-Strain, Machine Design, CAD/CAE, and Visualization is appreciated. Knowledge of MS Office and MS Project is a plus.
• Excellent prospecting and presentation skills .
• Must be strongly focused and extremely organized.
• Exceptional oral and written communications skills are essential.

About SoftInWay Corporation

SoftInWay, Inc., located in Burlington, MA, a 5 year old corporation, is a Scientific and Engineering organization that has a broad foundation of experienced turbomachinery development talent that markets engineering services, software products, and education. We provide design simulation solutions that use visualization of data to solve complex engineering problems. Our clients depend on us to fill non-core engineering capabilities/analysis, and provide the engineering software design tools/software to rapidly develop products and modernize/re-rate legacy turbine equipment. We are very efficient, easy to work with, cost effective, and are proud of our 24 hour customer service support. *AxSTREAM* is our premier solution for your design and analysis process; our technical roots go back over 30 years, we have 9 PhD level engineers and over 100 man-years of knowledge-base in the product. We are bringing this technology to the market as "AxSTREAM" - making it straightforward and rapid for your development team to conceptualize and optimize turbine flow path design.

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For more information, visit http://www.softinway.com or call 781-685-4942.

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