CAREER

Portfolio

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I. Letter of Introduction

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I gained 7+ years of experience in operations and project management in heavy engineering industry after getting my Bachelor's in Mechanical Engineering Industry. After that I gained project-based knowledge of Artificial intelligence techniques using machine / deep learning while I was doing my Master's in Nuclear Engineering at Oregon State University. Finally, to add upon my technical skills with proper managerial skills I am currently enrolled in Technology Management Degree program at Columbia University, where I will graduate in December, 2021. During this program I have gained relevant knowledge of data mining, cleaning, analysis and visualization and expertise in data driven decision making with relevant coursework in Machine learning. Along with course works in operations, strategy, organizational behavior and marketing I have acquired relevant business skills from Columbia University too. Furthermore, I do have a Certified Scrum Master (CSM®) and Certified Scrum Product Owner (CSPO®) certification. Consequently, now I am passionately trying to gain hands-on experience with Product Management & so that I can make a career out of it.

II. Career-Pursuit Information

II. CAREER-PURSUIT INFORMATION

1. Resume:

Ravi Kumar (656 Palisades Ave, Jersey City).
rk3131@columbia.edu | linkedin.com/in/ravi-kumar-6024456a | 541-360-9500

PROFILE

Experienced Technical Manager with 7+ years of experience in project planning, management, development and implementing tactical & strategic projects in engineering industry. Expertise in data driven decision making, business oriented technical analysis using machine / deep learning methodologies & scrum framework. Passionate to gain hands-on experience with Product Management & make a career out of it.

WORK EXPERIENCE

Intern (Robot Developer). 01/2020-08/2020
Pacific Northwest National Laboratory ***Richland, WA***

Project scope: Work in the Nonproliferation and treaty verification department to devise an inspection process & develop a product (autonomous robot) aimed toward fulfillment of International atomic energy agency (IAEA) nuclear waste material safeguards buried in an underground geological repository.

Key contributions:

- Performed & delivered results in a diverse & cross-functional team of nuclear scientists, researchers & software engineers.
- Developed a software model of the underground geological repository which helped to obtain technical parameters for the robotic monitoring system.
- Developed a robotic system mounted with sensors to verify the repository design & continuity of knowledge of nuclear material presence using the technical parameters developed [1].

Research Assistant (Software Developer). 01/2018-12/2019
Oregon State University ***Corvallis, OR***

Project scope: Work under Dr. Todd Palmer (Associate Dean, COE, OSU) in the radiation transport team (RTRP) to develop a software product suitable to solve to solve neutron transport equation in slab geometry using artificial neural network (Artificial Intelligence).

Key contributions:

- Achieved success in solving neutron transport equations (slab geometry problem) by developing a deep learning algorithm-based software product on Python language using the PyTorch library [2].
- Ultimately, this method is explored for its applications in different scenarios and also how the computational cost could be optimized using parallel computing.

Management Trainee-Deputy Manager 01/2010-11/2017
Coal India Limited ***India***

Scope (Management Trainee): Handle the vendor management, inventory forecasting & control, maintenance regime & operations management of HEMM fleet (2-shovels, 8-dozers & 4-drills) & team of 40 technicians in the excavation department.

Key contributions:

- Availability of dozers & shovel increased by 11% & 7% respectively. Implemented just-in-time technique to reduce inventory overhead cost by 15%.

Scope (Assistant Manager): In addition to previous responsibilities, collaborate with a cross-functional team across projects & ensure compliance.

Key contributions:

- Reduced the downtime of HEMM's by an average of 12% using concurrent engineering.
- Successfully represented the plant to maintain the ISO 9001:2015 & comply with the commitment to quality service & customer satisfaction.

Scope (Deputy Manager): In addition to previous responsibilities, responsible for communication, engagement, decision, conflict & risk management with original equipment manufacturer (OEM) about warranty & claims of the equipment & spares.

Key contributions:

- One of the successfully negotiated claims with the OEM resulted in a new replacement of premature failed powershift transmission for BD355 dozer. Saving around 9000 USD that is 30% of the quarterly repair budget for the plant.

EDUCATION

Columbia University in the city of New York, USA **GPA: 3.91/4**
MS in Technology Management Expected 12/2021

Oregon State University, USA **GPA: 3.65/4**
MS in Nuclear Engineering 01/2018-12/2020

Indian Institute of Technology, Dhanbad **First Class (7/10)**
B-Tech in Mechanical Engineering 06/2005-06/2009

SKILLS

- Agile / scrum framework
- Strategic business planning
- Project Management
- Data mining / cleaning
- Data analysis / visualization
- Managerial statistics
- IT / Technology law
- Accountancy & Finances**
- Digital strategy**

TECHNICAL SKILLS

- Machine / Deep learning
- Jira
- PowerBI
- Python / C++ / R
- PyTorch
- Jupyter / NumPy / Pandas
- IBM-SPSS Modeler
- Cybersecurity**
- Blockchain**

CERTIFICATIONS

Project Management Professional® Training [3].
Certified Scrum Master (CSM®) [4].
Certified Scrum Product Owner (CSPO®) [5]
Project Management Professional (PMP®). ***In-progress***

LANGUAGES

Can understand Indian languages such as Hindi, Punjabi, Bengali, Gujarati and Marathi.

**: *courses enrolled in.*

2.Letters of Recommendation

Dear HR Committee,

I want to recommend Ravi Kumar for your Internship program. Mr. Kumar reported to me, and he worked with me as an associate during the year 01/2013-11/2015. During his stint, we were able to successfully surpass the recommended target for availability and utilization target for the HEMM equipment for the year of 2014-2015.

When I was assigned Mr. Kumar as an associate, the first impression that I had on him made me realize that he was very loved and respected among his team members. He has the inherent ability to make everybody smile. On the professional front, our journey began from the very next morning at 8 AM when Ravi gave me the last night report about the HEMM equipment status. His insightful thoughts and farsightedness helped us to plan our day. As the day passed, I observed that he was able to fulfill the daily goals and commitments as decided in the morning meeting. The best part, however, was that during the whole day, he required my minimal interference. The reason behind this was his ability to think analytically about any problem, problem-solving skills, and the personal impact that he had on his team.

He was instrumental in maintaining the availability to around 91% of all the HEMM equipment assigned to him. This was a significant achievement as he was able to set a new standard among all his peers. His work ethics, motivation, and leadership quality made him an outstanding professional, which yielded him a promotion in just four years to Deputy Manager rank in 2017. Starting from Management trainee and reaching the level of Deputy Manager in a government entity took him only six years, which is commendable.

Ravi, however, needs improvement regarding his writing skills as well as networking skills. However, I think that his ability to accept the mistake and his ability to improve upon his shortcomings make him a quick learner. Therefore, I believe that his decision to pursue a internship in Product management will surely help fill the gap that he has in his professional acumen. Furthermore, I overwhelmingly support his decision to move on to new horizons.

If you have would like any more information regarding Mr. Kumar’s application, please do not hesitate to contact me at my phone number +916202954826.

Sincerely,

Subhendu Horo, Deputy Manager, Coal India Limited.

To Whom It May Concern:

This letter is to endorse Ravi's application for your internship program. Since excavation engineer in our company report to system engineer for operations management, I had the opportunity to supervise him and oversaw his work and progress from 2012 to 2016. I have personally known him as a responsible and passionate Excavation Engineer. I can personally vouch for his capabilities as an efficient and highly motivated professional.

As a Management (Engineer) Trainee, Ravi's responsibility was to work closely with a repair and maintenance group personnel who were involved with the assembly, repair and overhauling of the breakdown Heavy Earth Moving Machinery (HEMM) equipment. Under his supervision, the group worked on an eight-cylinder & twelve-cylinder automatic transmissions, and hydraulic pumps meant for HEMM equipment. During his stint, the downtime for the equipment breakdown decreased by more than 10%. I think he achieved this feat because of his ability to lead and work in a team. He was also responsible for creating a daily report, inventory management, and creating a database for the downtime of the equipment. In both of his database management work and report writing, Ravi has always delivered his work punctually and with a high-quality standard. As a direct supervisor, I observed that he handled his responsibilities without any extra supervision and exceptional professionalism. He established his "difficult to replace" presence in a short time. I wrote his appraisal based on his performance, which resulted in his promotion as an Assistant Manager (excavation engineer).

Further, after his promotion, he was also assigned on-site duty in addition to his earlier responsibilities. In this role, he was instrumental in modifying the maintenance regime for the HEMM equipment, which later resulted in the increase of availability for the latter by 11%. Coal Industry is dependent on HEMM, and therefore, optimizing the HEMM availability is a complex problem. He was able to solve that complex problem with his initiative-taking ability and creative approach. Also, I was impressed by his innovative skills and his ability to apply them with confidence. He was also responsible for coordinating with the OEM Service Engineer, which he performed very well due to his interpersonal and negotiation skills.

I fully support Ravi in his decision to pursue a career in product management, and I offer him my highest endorsement. I believe that a structured and formal training in product management will bring out the best of him. Additionally, his dedication and self-starting attitude will lead him to great success in whatever field he chooses. Please contact me at the phone number provided below if you have any more questions about Mr. Kumar's application.

Sincerely,

R. Ranjan, Deputy Manager (System), Coal India Limited, +918002769253.

III. Samples of Work

III. SAMPLES OF WORK

1. Pacific Northwest National Laboratory, Robotic Product Development

Situation: The business objective was to assist the International Atomic Energy Agency (IAEA) (stakeholder) to help achieve nuclear material safeguards for nuclear waste materials (spent nuclear fuels) buried under a geological repository.

Task: The overall scope included working in a team of four at the Pacific Northwest National Laboratory, analyzing the present geological repository, developing a thermal profile model for the surface of the geological repository, also a model to obtain radio-assay at the surface of the geological repository, suggest suitable technologies based on those physical parameters, and finally to build an autonomous vehicle for technical parameters verification.

Action: As the product developer, during Initiation, I did feasibility studies to define the overall project charter. Also, the project charter was developed according to the aims and objectives regarding nuclear materials safeguard goals. In the planning stage, I helped develop a scope baseline and created a WBS for my other team member. Also, I lead the other team member to estimate the cost of the project and determine the budget accordingly.

Result: In the execution phase, I developed a thermal profile based on COMSOL software and MCNP for radio-assay. I was also instrumental in suggesting relevant technologies for the project. I was instrumental in establishing communication channels with the IAEA representative (stakeholder). Furthermore, I implemented the risk responses which came up as actions of planning. During the controlling and monitoring phase, controlling the costs of the project using the EVM analysis. I also monitored the schedule for any possible risks of delays and I also gave a weekly project status report. The project was completed with all the success and the deliverable was presented as a write-up and a prototype model. In the closing phase we handed over the project to the IAEA [1].

2. Research associate, Oregon State University, Software development

Situation: The business objective of the project was to work under Dr. Todd Palmer (Associate Dean, COE, OSU) in the radiation transport team (RTRP) to develop a software product suitable to solve neutron transport equation in slab geometry using artificial neural network (Artificial Intelligence). This work was carried out in-close partnership with the Lawrence Livermore National Laboratory, Livermore, CA.

Task: To write a software code in Python using PyTorch library which could be used to solve neutron transport equation in a slab geometry. Furthermore, expand the software code to include situations such as reflecting boundary & multi-group transport equation.

Action: Learned deep learning and machine learning through courses and studied the problem involved. Also, studied the previous literature that is the work done in the past. Finally, I was able to develop a software.

Result: Achieved success in solving neutron transport equations (slab geometry problem) by developing a deep learning algorithm-based software product on Python language using the PyTorch library and tested that code against benchmark Reeds and DeBarros problem. Expanded the algorithm to include situations such as multi group and reflecting boundary problems. Ultimately, this method is explored for its applications in different scenarios and also how the computational cost could be optimized using parallel computing [2].

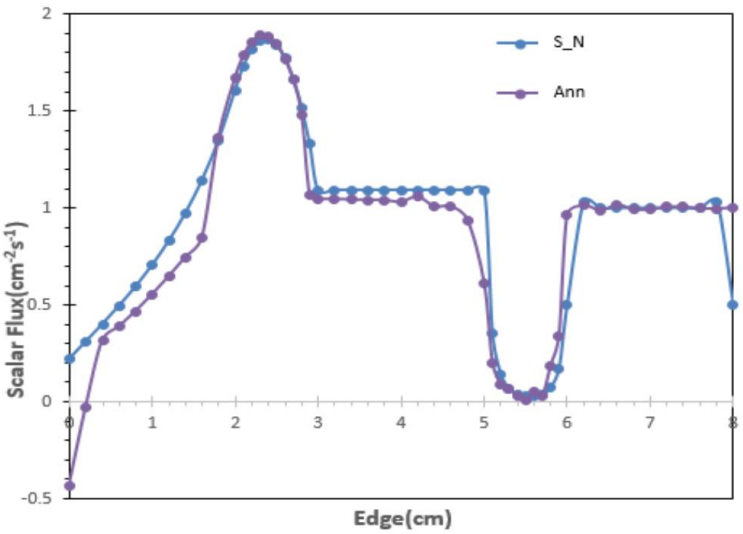

Figure 14: Scalar flux comparison for Reed's problem.

3. Deputy Manager, Coal India Limited

Situation: The business objective was to achieve, and maintain the availability and utilization of 5 shovels and 3 drills at Dakra Project (open cast mines), Coal India limited up to a minimum of 82% and 58% respectively within the allocated budget.

Task: The overall scope of the project included working in the capacity of Deputy manager supervising 7 technical group (4 members each), analyzing the inventory requirements, creating a WBS for the team, creating maintenance schedules, handling daily operations, rolling out the outsourcing tenders, breakdown maintenance, and to ensure that the cumulative availability and utilization goals are met.

Action: As the deputy manager, during project Initiation, I did feasibility studies to define the overall project charter. Also, the project charter was developed according to the aims and objectives required by the mining department, finance, industrial engineering departments (stakeholders) responsible for the coal production. In the planning stage, I helped develop a scope baseline and minimum achievable. Also, I was responsible for the estimation of the cost of the operations, inventory, and outsourcing and to limit it within the allocated budget. In the execution phase, I followed hybrid approach for the breakdown maintenance and also, just in time procedure for inventory management. I was also instrumental in performing risk management analysis. I was instrumental in establishing communication channels with the stakeholders that's the mining department, finance, and industrial department. Also, I was responsible for the communication, engagement, decision, and conflict and risk management with the OEM suppliers about the warranty and claims of the equipment and spares. During the controlling and monitoring phase, performed controlling the costs of the project and the monetary loss suffered by the organization due to the unavailability of the equipment resulting in loss of production. Furthermore, a daily project status report was also prepared.

Result: The project deliverable resulted in a cumulative availability and utilization of the shovel and drill to be around 84 % and 63 % for the four-month period. In the closing phase we handed over the deliverable in form of successful achievement of the target of the monthly coal production through maintaining the prescribed availability and utilization standards that too under the allocated budget.

IV. PERSONAL INTERESTS & ACHIEVEMENTS

Apart from my professional life I am a yoga enthusiast and a black belt in karate. I love cooking and travelling. On the personal front I like doing deep research into a situation, coming up with a strategy and solving problems by applying that strategy. In fact, I think of life as a fun-problem only.

Oregon State University

The Trustees of the University, by virtue of the authority vested in them by law, and on recommendation of the Faculty Senate, has conferred on

Ravi Kumar

the degree of

Master of Science

Nuclear Engineering

with all the rights, privileges, and honors thereto appertaining.

In testimony whereof we have subscribed our names and impressed the seal of Oregon State University on this diploma at Corvallis, Oregon, this eleventh day of December, Two Thousand and Twenty.

F. King Alexander
President of Oregon State University

OREGON STATE UNIVERSITY 1868

Ravi Bhatkar
Chair of the Oregon State University Board of Trustees

Serial No. CF 0033

Admission No. ....9216.....

भारतीय खनि विद्यापीठ

का कार्यकारी बोर्ड

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तत् सम्बन्धित समस्त प्रतिष्ठा, विशेषाधिकारों एवं दायित्वों से युक्त भारतीय गणराज्य के अन्तर्गत धनबाद में इस संस्थान की मुद्रांकित उपाधि दिनांक *9 जून 2009* को प्रदान करता है।

The Executive Board

of The

Indian School of Mines

Upon the Recommendation of the Academic Council hereby Confers on

RAVI KUMAR

The Degree of

Bachelor of Technology

in

Mechanical Engineering

in

FIRST CLASS

With all the Honours Privileges and Obligations thereunto pertaining

Given on the *June 9, 2009* *under the seal of the Institute at Dhanbad in the Republic of India.*

कुलसचिव
Registrar

निदेशक एवं अध्यक्ष, शैक्षणिक परिषद्
Director & Chairman, Academic Council

अध्यक्ष, कार्यकारी बोर्ड
Chairman, Executive Board