

CURRICULUM VITAE

Mamadou Alouma DIALLO

Date and place of birth : November 19th, 1974 in Khombole
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ELECTROMECHANICAL ENGINEER & RESEARCHER

UNIVERSITY DEGREES:

2020: DOCTOR OF SCIENCE IN PHYSICS – SPECIALITY: FLUID MECHANICS & APPLICATIONS – UCAD, SENEGAL

2015: MASTER IN MATHEMATICAL MODELLING AT UNIVERSITY PIERRE & MARIE CURIE (PARIS 6) - SORBONNE

2011: MASTER IN BUSINESS ADMINISTRATION (IFACE-FASEG / UCAD)

1999: MASTER OF SCIENCE IN ELECTRO-MECHANICAL ENGINEERING - THIES POLYTECHNIC SCHOOL - SENEGAL

1994: BACCALAUREAT MATHS & PHYSICS - LYCEE EL HADJI MALICK SY OF THIES

1993: CERTIFICATE OF PARTICIPATION IN THE PANAFRICAN OLYMPIADES OF MATHEMATICS (OPAM-UCAD).

AFFILIATION:

- AMERICAN SOCIETY OF MECHANICAL ENGINEERS (A.S.M.E.)
- ASSOCIATION OF DIPLOMAS OF THE POLYTECHNIC SCHOOL OF THIES (A.D.E.P.T)
- LONDON MATHEMATICAL SOCIETY

SKILLS:

- Conventional and renewable energy;
- Air conditioning / HVAC, electricity and plumbing for buildings;
- Power Engineering (power stations and electrical networks HV, MV & LV);
- Informatic networks, telephony networks and Fire alarm systems for buildings;
- IP CCTV, IP Access control, IP Anti-intrusion systems ;
- Electronics, Signal processing (analog and digital),
- Instrumentation, Control system engineering and HMI (Human Machine Interaction);
- Design and assembly of machines and electromechanical systems;
- Energy audit, energy saving and integration of energy solutions;
- Hydraulics and sanitation (pumps, pumping stations, networks);
- Water and wastewater treatment systems (MBR, SBR, Activated sludge technologies)
- Strategic Management of operations, Piloting System Design, Forecasting;
- Layout of production units, Process optimization, Planning and control of production and stocks,
- Maintenance, supervision of electrical and mechanical works, quality management;
- Analysis and mathematical modeling of physical systems, simulations and visualization;
- Environmental impact studies, environmental audit and hazard study;
- Financial analysis of investment projects and project management;

COMPUTER & SOFWARES:

EXCEL, ACESS, AutoCAD, SPAD, EIEWS, PYTHON, SPSS, MATLAB, SCILAB.

PUBLICATIONS :

Mamadou, Alouma Diallo, Gerasimov, Ie. G. et Stashuk, V. A. (2021), « **Analysis of Ukraine water sector using a system approach** », Bulletin of the National University of Water Management and Nature Management (4(96)). pp. 117-129, <http://ep3.nuwm.edu.ua/23566/>.

Nataliia Kovshun, Nataliia Savina, Mamadou Alouma Diallo, Nina Kushnir, Dong Zhiwei5 and Vitalii Zoshchuk, « **Principles of creating a system of sustainable water use in Ukraine** », E3S Web Conf. **Volume 280**, 10007, 2021, Second International Conference on Sustainable Futures: Environmental, Technological, Social and Economic Matters (ICSF 2021), Section : [Water Management and Environmental Engineering Workshop](#).

Hammad H.A., Diallo M.A. (2021) « **Common Solutions to Variational Inequality Problem via Parallel and Cyclic Hybrid Inertial CQ-Subgradient Extragradient Algorithms in Hilbert Spaces** ». Editors : Debnath P., Konwar N., Radenović S. (eds) Metric Fixed Point Theory. Forum for Interdisciplinary Mathematics. Springer, Singapore. https://doi.org/10.1007/978-981-16-4896-0_9 »

Mamadou Alouma Diallo, Aboubacar Chedikh Beye, Cheikh Mbow, 2019, « **Numerical Simulation of a Combined Radiation-Conduction Heat Transfer in An Electric Furnace** », INTERNATIONAL JOURNAL OF ENGINEERING RESEARCH & TECHNOLOGY (IJERT) Volume 08, Issue 06 (June 2019).

Mamadou, Alouma Diallo and Gerasimov, Ie. G. (2022) « **A geostatistical approach to groundwater modelling in Thiaroye coatal aquifer** » Bulletin of the National University of Water Management and Nature Management (1(97)). pp. 116-131. <https://ep3.nuwm.edu.ua/27654/>

EXPERIENCE IN TEACHING & RESEARCH:

● May 2021 : **International Conference on Sustainable Futures : Environmental, Technological, Social and Economic matters (ICSF2021) at Kryvyi Rih National University, Kryvyi Rih, Ukraine**

Presentation of the paper : « Principles of creating a system of sustainable water use in Ukraine », at **Water Management and Environmental Engineering Workshop (WaterManEnvE-WS'2021)^{Rivne}**,

● October 2020 : Invited for International scientific and technical conference “**Innovative development of resource-saving technologies and sustainable use of natural resources**” which will take place on October 26, 2020 in the distance form at **University of Petroşani (Romania)**. The conference aims to find solutions for urgent problems of sustainable use of natural resources, establish contacts among scientists from different countries, exchange research results and experience. Our presentation will be about : « **A geostatistical approach to groundwater modelling in Thiaroye coatal aquifer** ».

● July 2020 : Invited Speaker for « **International conference on recent trends in advanced material** » on 06th July 2020 in **India** jointly organized by Nevjabai Hitkarini College, Bramhapuri, Dist. Chandrapur, Late.B.S.Arts, Prof.N.G.Science & A.G.Commerce College, Sakharkheda Dist.Buldhana and Shri. Sant Gadge Maharaj Mahavidyalaya, Hingna, Dist. Nagpur. Our presentation was about : « **Computational Optimization in Process Heating** » (Diallo, Mamadou. (2020). COMPUTATIONAL OPTIMIZATION IN PROCESS HEATING).

● December 2017: Director of Carmels Research Institute, Dakar, Senegal, website: www.carmels-tech.wixsite.com/institute

● March - April 2016: Visiting lecturer at University College of London (UCL) - Department of Geography

● November 2015 to October 2017: "Project Manager" for the International Consortium for Water, Sanitation and Capacity Building Research (AFRIWATSAN) - CHEIKH ANTA DIOP UNIVERSITY OF DAKAR. Areas of research: Hydrogeology, Sanitation, Public Health, Modeling, Statistics. Funding: Royal Society / DFID (United Kingdom) 1,225,000 British Pounds

● November 2014 to 2017: Visiting lecturer in mathematics - University Cheikh Anta Diop of Dakar - Department of Mathematics and Computer Science

● November 2008 to 2015: Lecturer in production management
School of Engineering Sciences (ESTI - Thiès), Ecole Supérieure Polytechnique (ESP - Dakar), HEC International University, SUPDECO

● June 2015 to November 2015: Training position in mathematical modelling at the Laboratory of Decision Mathematics and Numerical Analysis (LMDAN) of UCAD (Senegal) under the supervision of Pr Diaraf SECK director of LMDAN and Pr P. PARNAUDEAU at laboratory Jacques Louis Lions (Paris 6).

PROFESSIONAL EXPERIENCE :

● From May 2021: Consultant for “Consult-Plus” firm

- Electromechanical Consultant Engineer for various small projects
- Electromechanical expert for the design studies of the “Dakar new Egyptian embassy construction project”

Components:

- Power engineering
- Computer Network & Telephony
- CCTV system, Access control, Fire alarm
- Air conditioning, HVAC, Plumbing & Fire network
- Building Management System

● January 2021 to April 2021 : Supervision of the electromechanical works at Senegalese Chemical Industries (I.C.S.):

Main tasks :

- Design of a new phosphate reprise system with underground hopper and belt conveyor
- Supervision of installation of sand filters for refrigerated water
- Supervision of welding works for various tubes and metals structures
- Supervision of the installation of various electromechanical equipments (pumps, compressors; etc).

● March 2020 to January 2021: (USAID Project) Quality control consultant at “Bountifield International”
www.bountifield.org.

Tasks:

- quality control of the photovoltaic powered millet thresher generation 5 (manufactured by “Omega”).
- development of a quality test protocol and measurement of the performance of Indian millet threshers (Thresher Thomas International)

● October 2019: Supervision of the electromechanical works for the “Construction of an aviculture training center in Diamniadio” project on behalf of the ARCHITDEV Architecture Firm

- Photovoltaic system,
- High current/low current electricity,
- Plumbing
- AC & HVAC
- Fire safety

● May 2019 to the July 2020 : Electromechanical consultant engineer for TPF SETICO firm for the studies and supervision of the works of the Cheikh Ahmadoul Khadim Complex of Touba (University of Touba).

Accomplished tasks:

- Design and specifications of hydraulic and electromechanical equipments for drinking water supply: 125 m³ / h - 100 mce, 55 kW
- Design and specifications of the MBR type wastewater treatment plant - 958 m³ / day
- Design and specification of hydraulic and electromechanical equipments for the university green space watering system: 2x105 m³ / h - 76 mce - 76 kW.

● February 2018 to the present: Electromechanical consultant engineer for the “Mamelles” seawater desalination plant (Nippon Koe / TPF SETICO). Owner: SONES. 1st phase: 50,000 m³ / day, 2nd phase: 100,000m³ / day.

Main tasks :

- Study of the Projected electrical sub-station 90KV / 30KV in "Mamelles" zone, 30KV / 6.6KV and 30KV / 400V switchgears and electrical distribution,
- Study of the low voltage 400V electrical distribution, 6600V supply of electric pumps, automation;
- Study and specification of the connection of the Mamelles substation to the 90KV loop;
- Study and specification of electromechanical equipment;
- Study and specification of remote management equipment for the water distribution network;
- Study and specification of pressure relief systems of the water distribution network;
- Supervision of equipment acceptance tests.
- Supervision of electrical and mechanical works.

● May 2018 to August 2018: (USAID Project) Consultant in production management at C.T.I. (Compatible Technology International) www.compatibletechnology.org : Evaluation of Pene & Fils manufacturing system (threshing machines) and development of a strategy and method to improve productivity and quality management.

- Recommend a layout and organization of work
- Create a Manufacturing Requirement Planning (MRP) and develop a projection schedule of manufacturing
- Send to CTI notes and observations about P&F projection schedule of manufacturing
- Organize training for Pene&Fils staff on manufacturing process (manufacturing process, stock management, etc.)
- Organize the different workstations and templates (jigs) for proper fabrication of the parts and assemblage of the threshers
- Produce a reasonable schedule for completion of the 60 units

● October 2017 to the March 2020 : Electromechanical consultant engineer for the supervision and control of sanitation works and urban restructuring of Hann and Petit-Mbao in Dakar (Consult-Plus / HYDEA). Project Manager: "Foundation Droit à la Vie" (FDV)

Main tasks :

- Control and approval of the Company's plans and orders relating to electromechanical equipments,
- Supervision of equipment acceptance tests.
- Study and supervision of the electrification of the resettlement area,
- Supervision of the equipment of the pumping station.

● November 2015 to October 2017: "Project Manager" for the International Consortium for Water, Sanitation and Capacity Building Research (AFRIWATSAN) - CHEIKH ANTA DIOP UNIVERSITY OF DAKAR.

Areas of research: Hydrogeology, Sanitation, Public Health, Modeling, Statistics.

Funding: Royal Society / DFID (United Kingdom) 1,225,000 British Pounds

● November 2012 to October 2017 :

Consultant at HYDROCONSULT INTERNATIONAL and CONSULT-PLUS in energy, hydraulics, environment and industrial safety;

- Training of the agents of the company RESIF for the use of the software ALOHA (Hazard study).
- Electricity & plumbing study for the health center of Samine in Ziguinchor;
- Public lighting study of the "Cambérène" park;
- Environmental impact study of the "Taiba Ndiaye" Wind Farm Project (150 MW);
- Electrical studies project «Training center for the trades of motorized mechanics and the unit of control Energetics of "Diamniadio" and the "Training Center for Agricultural Machinery jobs" at "Diama" (Saint Louis) »;
- Hazard study of the project "regional electric train" (T.E.R.) Dakar-AIBD - APIX: description of systems, electrical hazards study, derailment modeling.

● September 2003 to October 2012

Works Engineer at EQUIP PLUS (Hydraulics, Energy).

- Preliminary studies;
- Overseeing of electrical and mechanical works
- Management of the installation teams;
- Management of the provisional planning;

- Management of work costs;
- Receipt & billing;
- Management of the guaranteed period.

TECHNICAL ACHIEVEMENTS;

- Wiring of LV electrical cabinets;
- Automation for pumping and remote management applications;
- Manufacture and installation of piping and accessories;
- Installation of generators;
- Installation of submersible electric pumps;

SUPERVISED PROJECTS;

- Supervision of the solar electrification and conventional electrification project of the "rural electrification concession" of Fatick - ASER (Senegal).
- Supervision of the equipment of more than 20 boreholes under the REGEFOR project (MV or LV network extensions, generating sets, electrical cabinets and accessories, submerged electric pumps, etc.) and training of operators in the following regions:

Thies: Ngolfagnick, Kissane, Malicounda Bambara, Keur Massamba Fatim, Sangu, Touba Toul etc.

Diourbel: Refane, NgatNgaraf, Ndoulo.

Fatick: Patar Lia, Gandiaye, Thiaré Ndiogui, Ngoloum.

Kaolack: Ngayène Sabakh, Ndiba Ndiayène, DaraDiaké, Ndiobène Samba Lama, Darou Miname Saloum, Ndioum Nguinte.

Kaffrine: Mabo, Loumen, Sagna, Mbar, Ndiéné Lagane, Katakél, Nganda, Arafat, Keur Mandoumbé, Malem Hodar.

Amount of the contract: 1.905.000 Euros - AFD Budget

- Installation of a suppressor in the Northern Port Zone (Autonomous Port of Dakar). (02 electric pumps with a surface area of 200 m³ / h each, DN 200 cast iron pipe, chlorination equipment, electrical cabinet, low-pressure protection at the suction of the pumps, pre-assembled LV connection 3 * 35 + 54.6mm²).
- Supervision of electrical and hydraulic equipment of the sewage pumping station of Unit 13 Parcelles Assainies / ONAS;
- Supervision of electrical and hydraulic equipment of the rainwater pumping station of the "Corniche des HLM" / ONAS;
- Supervision of the Electrical and hydraulic equipment for the Diourbel F6 borehole (160m³ / h) / SONES;
- Supervision of electrical and hydraulic equipment for Ndiosmone boreholes: MV electrical line, MV / LV substations, remote management: DHA Thiès
- Supervision of the installation of pumping systems in the flooded areas of Thiaroye and Pikine as part of the pumping operations of the Diakhaye plan for flood control.
- Supervision of the installation and connection of electrical cabinets and automatic bar screens for ONAS pumping stations (ONAS City, Lobat Fall City, HLM Las Palmas Guédiawaye, Saint Louis, Louga).
- Supervision rehabilitation of electrical and hydraulic equipment of Kayar borehole
- Supervision of electrical and hydraulic equipment of the "Diamaguène" rainwater pumping station at km 14 (4000m³ / h) - transformer station, generator, electromechanical equipment / ONAS & ATR.
- Supervision of electrical and hydraulic equipment of the "4C" / ONAS wastewater pumping station,
- Supervision of electrical and hydraulic equipment of the wastewater pumping station of the Dakar / ONAS western cornice,
- Supervision of the Electrical and hydraulic equipment of the Matam and Dolol Odobere Irrigation Station under the project (PDRM) / SAED MATAM - 10 km of MV networks, MV / LV substations, electromechanical equipment.
- Study and supply of rectifiers and current generators for SENELEC substation Bel-air.
- Supervision of electrical and hydraulic equipment of the Anambé / SODAGRI SP5 irrigation station.
- Supervision of the Electrical and hydraulic equipment of the irrigation stations of COLLENGHAL and MOUDERI-DIAWARA / SAED BAKEL - MV network, MT / LV substation, electromechanical equipment.
- Supervision of repair work of the electrical installations of SAED/Bakel base-life.

● September 2002 to August 2003:

- Supervision of technical equipment (electricity, plumbing, central air conditioning, fire safety) for ON-The-Run service stations of Mobil-Oil Senegal;
- Electromechanical consultant engineer at CEP Polyengineering for the study of the electrification of 66 rural localities in the Fatick region within the framework of the Senegalese Agency for Rural Electrification (A.S.E.R.) - 2002/2003.



Amount of the contract: 106,700 Euros - Budget BCI-Senegal

- Head of the design office of SGE-EQUIP (ex Bergeon Senegal) in charge of studies in air conditioning and sanitary plumbing.

* Studies and Supervision of plumbing works for the headquarters of the Ministry of Health near Fann Hospital;

* Studies and Supervision of plumbing works for "villa Samba KA" Almadies;

* Supervision of the air conditioning works at Presidency of the Republic - Dakar;

* Supervision of the plumbing works at "Trilénium" building in Dakar;

* Maintenance of air conditioning systems of the BCEAO;

* Supervision of the plumbing works at SCI Tamaro;

* Various plumbing and air conditioning studies of buildings and villas for private individuals.

● February 2002 to July 2002:

Consultant Engineer in electromechanics at SEMIS:

- Responsible for the technical control of the drinking water supply project in and around KAYAR (1 km of MV line, MV / LV substation, pumping cabin and dewatering system) for an operating flow of 65 m³ / h.

- Responsible for studies and control of works within the framework of the REGEFOR project "Reform of the management system of rural motorized boreholes" in the regions of Thiès, Diourbel, Fatick, Kaolack".

Consistency of the works: MV and LV Network extensions, generator sets, electrical cabinets and accessories, submersible electric pumps, etc.

Amount of the contract: 1.905.000 Euros - AFD Budget

Tasks:

- Study of the possibilities of connection to MV or LV electrical networks of pumping stations;

- Diagnosis of pumping systems;

- Design of the pumping stations;

- Identification of detailed works to be done.

● February 2001 to February 2002:

Electromechanical consultant engineer for the doubling capacity project of ICS (CHEMICAL INDUSTRIES OF SENEGAL) in charge of the management of the construction and equipment:

- Planning of construction operations (reception and installation of equipment, checks, parameterization and commissioning)

- Tracking orders and budget

- Update spare parts inventory management parameters

- Planning of lubricant and fuel supply requirements

- Monitoring and control of the database of installed equipment and their parts

Financing AFD / BOAD / BEI / States of Senegal, Ivory Coast and Cameroon: 250,000,000 Euros

● January 2000 to December 2000:

Assistant engineer for the supervision of the installation and interconnection of the Cap-des-biches SENELEC "C5 power station" (20MVA generator set installed by MATFORCE).

Amount of the contract: 7.470.000 Euros - Budget BCI / Senegal

Missions:

- General coordination of works (Electricity, Welders / Assemblers / Pipefitters, Civil Engineering)

- Dimensioning of the metal structure;

- Dimensioning of the LV cables;

- Design and dimensioning of the Earth Link Systems (SLT);

- Setting protections, synchronization;

- Supervision interview groups.

● December 1998 to January 1999:

Training position at SOSETRA Theme: Determination of the operating parameters (energetic aspects) of the steel bar reheating furnace in order to optimize its operation.

I, the undersigned, certify on my honour that the above informations make a true evaluation of my qualifications, my skills, and my experiences

Made in Abidjan on November the 05th, 2023